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THE TEACHERS' GUIDE



CENTRE PANEL OF HANGING FOR PIANO BACK
Group Work by Senior Girls

THE TEACHERS' GUIDE

*A Practical Treatise
written by Specialists*

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MISS L. N. A. CARSON

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NEEDLEWORK

BY

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NEEDLEWORK

CHAPTER I

Introduction

Needlework is rightly considered to be a necessary subject for girls, not only because making and mending must be done by the women in every home, but also because, if rightly taught, it helps to develop a child's artistic sense and skill, while satisfying her desire to make something which she can use or wear. It may also be useful as a means of training girls in patience, thoroughness, and accuracy. The way in which needlework is taught has changed completely during the last fifteen or twenty years. Formerly, the chief aim of the teacher was to secure fine sewing, and little consideration was given to the tastes, interests, and worst of all the eyesight, of individual children. All work was put out and prepared ready for the child to sew, and many hours spent in repeating methods and processes in which she was already perfect, either to keep her employed, or to secure a high standard of fine stitching. The actual sewing done in schools was often wonderfully good, but it was put into practising pieces or "specimens" and not into actual garments, or was used in making up strong or coarse materials for which it was quite unsuited.

Infants were taught to sew at 6 years of age, and expected to be able to do it well by the time they were 7 or 8, practising the stitch on strips of calico, with the hem turned and tacked ready for them. The handkerchief or towel achieved with much labour must remain in the memory of many older women to-day.

As a natural result, needlework often became drudgery, and the sewing lesson a burden. At the same time it must be remembered that many girls left school able to sew well, and to darn and patch neatly, though few had any knowledge of how to cut out any garment except a chemise and a "cottage" pinafore.

The first step towards something better was the reduction and finally the abolition of specimens. The kind of work which would appeal to little girls—such as making dolls' clothes—was substituted; later, needlework was put in its proper place as handwork, and common sense and increased knowledge of the health and development of children are gradually helping both teachers and those who train them to find paths by which children may be led to take pleasure in doing needlework well, as well as in making and decorating the various things that girls wear or use.

The Teacher

The teaching of needlework should, if possible, be in the hands of a teacher who is specially qualified, and who can be responsible for the subject throughout the school, even if she cannot herself undertake the teaching in every class. Such an arrangement is advised, because, although skill in craftwork is essential, the subject includes much more than that, and a girl has much besides the actual sewing to learn in the time she spends over this subject.

Anyone familiar with school time-tables will know that in the past (and in many cases at the present time also) every girl attending a public elementary school in this country spent from two to three hours of her time every week in learning to sew. It is therefore surprising to find that in many Women's Institutes, members are asking for lessons in cutting out, in making and renovating garments, and in such processes as making buttonholes and darning. Those hours at school could not always have been used to the full if this is the result.

The advantages of training as a specialist do not need to be stressed. In the case of needlework, practical skill is not all that has to be acquired. The teacher must know how to choose and use tools and apparatus, how to choose materials, and what kind of clothing is most suitable under different circumstances or conditions. She must understand the proportions of the human figure, and be able to shape garments so that they fit comfortably, and look well; to know how to calculate quantities, and to buy wisely, and how to use time and energy, as well as material, to the best advantage. Finally, she should be able to give advice about colour, design, and the use of ornament, so that the appearance, as well as the workmanship of what her pupils make, is pleasing and suitable. It needs a teacher who has made a special study of the best methods of teaching the subject, as well as being a skilful craftswoman, to do all this successfully. It is important too that her dress should be attractive, and that she should wear, or be able to show, things which she has designed and made herself.

A teacher who is not a specialist, but who wishes to increase her knowledge of the subject, as well as her practical skill, and to learn more of modern teaching methods, may do so in one or more of the following ways. She may:

1. Take a course of lessons by post. These are arranged by such bodies as the Educational Needlecraft Association or the City and Guilds of London Institute. (Good articles on needlework-teaching are to be found in such papers as *The Schoolmistress*, and questions from teachers are answered clearly and sympathetically.)
2. Attend a course of lessons at some convenient centre; either an evening or Saturday class may be found at most technical institutes.
3. Take a short course at any training college of domestic subjects.
4. Inquire about holiday courses. These are arranged at a suitable

centre, usually during the early part of the summer vacation, and particulars may be obtained from The Secretary, Board of Education, Whitehall, S.W., or from the local Education Authority, whose organizers or inspectors, as well as those under the Board of Education, will advise her in the matter.

5. Try to see any needlework or garments exhibited at schools, colleges, women's institutes, and similar places; study the syllabuses used for any type of class which she can obtain, and the paper of questions set at any recognized examination, so that she may see what others are doing.

6. Spend fairly freely on any new books which are likely to be helpful, and take a good fashion paper regularly.

CHAPTER II

The Junior School

Although little or no actual sewing is now done in infant schools or classes, the children find when they pass into the junior school that the measuring, cutting, weaving, and handwork generally, which they have already done, help them to plan and carry out the more difficult work involving the stitches and processes used in doing needlework. At this stage it is important that they should not be discouraged, and that the independence and initiative which have already been developed should not be checked or condemned.

Equipment

Every child should have her own tools, and learn to take care of them. It may be necessary for her to use from the common stock until she has made her own needlecase, pincushion, and workbag or apron, work which should be done as soon as possible, so that the habit of keeping sewing materials ready for use may be formed. Beginners should use needles large enough to be handled and threaded easily by small fingers. Crewel needles may be tried at first, followed by coarse sewing needles, and later by "between" needles for finer sewing. A thimble must be worn, and children must accustom themselves to its use. It should, however, fit comfortably and be used correctly, not to give a detached push to the needle, but applied with it when a stitch is taken. Celluloid thimbles are more comfortable to wear than metal ones. Moistening the finger will prevent a thimble from slipping off, unless, of course it is much too big. A thimble shaped to fit the top of the finger used to be made and was comfortable to wear, but is no longer obtainable.

The cotton or thread must be chosen to suit the needle as well as the material to be sewn. For children who have probably only used wool or raffia, coloured cottons, such as are made for embroidery or marking, are suitable. The practice of using coloured sewing cotton for white work,

to enable small stitches to be seen more clearly by both the teacher and the child, has, it is to be hoped, died out. A piece of hemming on calico begun with pink and continued with blue cotton—or even worked with black cotton—was once not uncommon. If a join in the cotton is properly made, it is quite easy without the help of contrasting colours to see that the result is strong, the stitches unbrokenly even, and the effect neat. (Coloured cotton is used for tacking, so that it may be easily seen and removed, but that is a different matter.) Sewing cotton must be a good make; inferior cotton knots and breaks easily, and is unsatisfactory to use when real sewing is begun. Nos. 36 or 40 are suitable for strong materials and hard wear, and Nos. 50 or 60 for finer ones. Reels of cotton should be kept in a box or bag, and never allowed to get dirty. If they must be used jointly, each girl should cut off her own length of thread as she needs it.

Every girl should have her own scissors. They must be good enough to cut cleanly, or they are not much use for shaping, and should have a blunt and a sharp point. When cutting out, the blunt point is kept underneath, as it will pass smoothly over the material or table. Accuracy in measuring is essential, and although a ruler may be useful for a good many measurements, a tape measure is also needed. A good one should be bought, as cheap ones soon stretch and become limp and twisted, and are then unreliable. A handy measure for small things may be made from the cover of an 8" exercise book by cutting strips 1" wide. Each strip may be folded into 8, when each space will equal 1", and can be marked in clear figures, with lines between each to show $\frac{1}{4}$ " and $\frac{1}{2}$ " measurements.

Pincushions are best if made flat. The mattress shape does not fall off the desk or table, and holds pins and needles more securely than a round one. The pins used for junior work should be of medium size. A few glass-headed drawing pins are useful to secure the paper to a desk or table when drawing or using a pattern.

One of the first things to impress on girls beginning needlework is that all their work must be kept as fresh and clean as possible. It is necessary to see that their hands are freshly washed, and that they have a wrapper which will hold their material and workbag, and will also serve as a cover for the desk or table while they sew. Girls who suffer from hot or moist hands may find it a good plan to hold any very light material between pieces of tissue paper. A little vinegar added to the water when washing, or powdering the hands after washing, may be helpful in such cases.

The girls need watching to see that from the first they adopt a good position when sewing. There is no need to stoop over work if the light is good, and the seat a comfortable height with a support for the feet so that the legs from hip to knee form a right angle with the body. If the lesson is given in an ordinary classroom, as it generally is in the junior classes, the girls may have to move from their own room to another, where the desks are a different size and the seats not perfectly comfortable. In such a case it may be possible for the teacher to get some chairs and tables,

or even chairs only, for any girls who are either much too tall or much too small to be comfortable in the desks; or the woodwork class may sometimes be able to provide one or two stools; or foot-pads and little cushions may be contrived out of old materials, to help to get over this difficulty.

Desk tops should be raised to make a flat surface for work, and if this is done, desks will suffice instead of a supply of tables, though they are not nearly so convenient. A trestle table should be available for cutting out or for planning work, and extra surface space may be contrived by resting a blackboard on two desks, though this is only a makeshift.

Every girl should, from the first, be provided with a notebook, lead pencil, and india-rubber, and a coloured pencil. Blue is the best colour to use as it shows up more clearly than red or green when the lines of a pattern are drawn.

Somewhere to keep needlework bags is needed. A common practice is to use a large hamper, into which everything can be put out of the way after the lesson. A drawback to this plan is, that getting out and distributing these bags is a slow process, and uses up valuable time unless it can be done before the lesson. A cupboard is more convenient, and drawers are better than shelves. If the class is large, it is a good plan to collect the workbags in sets, and to tie each set together. The large packet is handed over to the responsible girl in each set as it is brought out for the lesson, and she can quickly distribute the bags to the six or eight members of her group.

The different articles which have been already mentioned as the necessary outfit for a girl beginning needlework are: A bag or wrapper, needles and cotton, thimble, measuring tape, and scissors and pincushion. She may need a footstool and small cushion as well. The making of a bag, pincushion, needlebook, or cushion will give plenty of opportunity for learning to cut and measure, to use a needle and cotton, and to apply the first stitches learnt. Her notebook and pencils must be used for planning, illustrating, and recording her work.

Only small pieces of material are needed at this stage, except for the bag or wrapper, but as this will have to hold everything else when made, it may be left for a time, and the simplest thing to make, chosen first. This will probably be a needlebook. Measuring and cutting squares, oblongs, and simple curves in paper, leads to the idea of a pattern which may be used for any of the simple things for which first stitches, tacking and running and blanket stitch, are suitable. A child who can tack and run, can join and make. She can also use these stitches for ornament, and for marking her name or outlining a design on the mat or bag or feeder she wants to make. The tacking stitch is grouped in various ways and different colours to secure both firmness and a good effect, the running stitch is used for joining and for outlining, and blanket stitch for a raw edge. The needlebook can be made without much actual sewing. It only needs to have the flannel "leaves" notched, and secured to a cover.

Cutting out in paper and material must be applied as necessary, and to each type of thing which is to be made.

Time Allotted to Needlework

In deciding how much time to allot to needlework teaching in the junior school, it is necessary to consider what other handwork is to be done, so that the available time may be divided fairly, and the work of the two branches fitted together. Each lesson should be long enough to allow time for getting some work finished, or at least on the way to completion; 40 minutes' lessons three times a week for the first year may be increased to 50 minutes in the second year, and possibly to an hour in the third and fourth years. A good deal of ground has to be covered between 7 and 11 years of age, as in these years all the stitches, and as many as possible of the processes, ordinarily used in doing plain sewing, must be taught. Backward girls will probably get on better if they do rather more handwork and rather less needlework than the others. They may in certain cases learn to do mechanical sewing fairly well, but merely putting a needle in and out without any definite aim will not help their mental development. Half-hour lessons give too little time for getting anything done, and although 40 minutes may in theory be too long a lesson for little children of 7 to 8 years old, it need not be so in practice. Plenty of free movement in choosing materials, or consulting sheets of directions, or in taking turns at working at the large table, will keep a child actively busy and make the time pass quickly. Class lessons should not exceed 20 minutes in length at this stage, or 30 minutes later.

Teaching Methods

The practice of teaching new work by demonstration has disadvantages as well as advantages. Children learn by imitation how to handle their work, but a demonstration lesson on an isolated process, given to a class of 40 or more little girls, often fails to arouse or sustain their interest. On the other hand, it is impossible for any teacher to give individual teaching if her class is large. Two plans have been successfully followed as a solution of the demonstration difficulty:

1. The class is divided into groups—a class of 40 may be formed into 5 groups of 8 girls—each with its own leader, and a class lesson given to one and sometimes two groups at a time, the others working alone, or with the help of their leader meanwhile. The leaders are chosen from among the most intelligent girls, and by the girls themselves, though with the advice of the teacher.

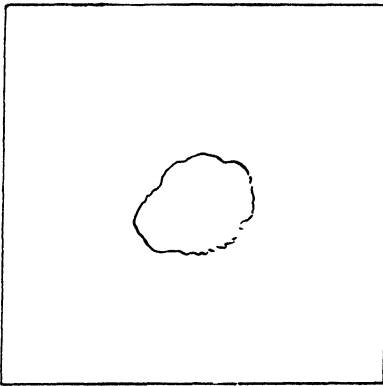
2. The second plan is to provide the class with a series of instruction cards or sheets for each stage in the work to be attempted, and let each one try to do it for herself, only appealing to the teacher in case of need. This is generally a very successful method. It is, however, a plan which involves a good deal of careful preparation on the part of the teacher; instruction cards need not be provided for each girl, but as many copies of each as possible should be hectographed, and at least one complete set given to each group. They must be set up on a blackboard, or in any prominent position where the girls can easily read what is written when

they come out of their seats to look, and each card must be clearly numbered. The teacher must of course watch what is being done by the girls in each group, and be ready to advise and help when necessary, or if appealed to. (See instruction cards below.)

PATCHING

For white and coloured patches on sheets, pillow-cases, petticoats, aprons, &c.

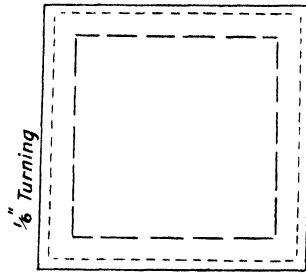
1. The patch should be sewn strongly to the garment, and when finished should be quite flat.
2. Avoid using new material. Therefore material used for patching should be washed previously. It must be the same material as the thing to be patched.



Wrong Side

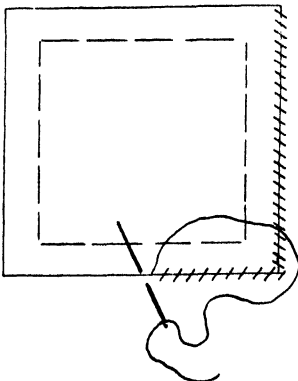
A

Cut a square piece of material for the patch, and turn down $\frac{1}{8}$ inch all round. Place patch on *wrong* side of garment and tack down.



B

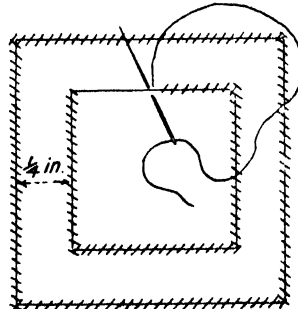
After tacking patch on to wrong side of garment hem *neatly* to garment. Take a stitch across each corner.



Wrong Side

C

Turn to right side of garment and cut away bad part of material round hole, leaving *nearly* $\frac{1}{2}$ inch all round.



Right Side

Turn raw edges under, keeping corners quite square, and hem neatly to the patch. (The width of this hem should now be about $\frac{1}{4}$ inch.)

WHAT TO DO—I

1. Choose your material.
2. Choose the coloured cotton.
3. Put your pattern on each long side.
4. Tack the turned edge with white cotton.
5. Begin and finish each line with a back stitch on wrong side.

WHAT TO DO—II

1. Draw a pattern to show how you will arrange the tacking stitches.
2. Pin the turned edges together and sew them.
3. Cut or fray the stuff to make fancy ends.

When a class is divided into groups, each should have some distinguishing title or badge, and the work of the group and not of the individual girls should be assessed in a summing up of results at the end of the lesson.

Use of Illustrations and Diagrams.—It is necessary for a teacher to provide herself with a good variety of things which illustrate what is being taught. The place and use of stitches or processes, and the result to be aimed at, are in this way put quite clearly before the class, and the choice and suitability of each may be discussed. Large diagrams and illustrations should also be prepared, and put up before the lesson begins in a place where they can be seen by the whole class. In taking a class lesson, and using the blackboard, a teacher may sometimes find it difficult to avoid turning her back towards the class. She may avoid doing this if, instead of teaching or demonstrating from the centre of the room, she stands at a corner, placing the blackboard at the angle of the wall. The girls may turn a little in their seats, so that they face her while she is teaching.

The things chosen for practical work in the junior school should not be very large or take too long a time to complete. It is not desirable, however, that much time should be spent over dolls' clothes, because unless

the doll is a very large one, little girls will find it difficult to manipulate the small garments it needs, and will be tempted to be content with work which looks "all right", but is not really correctly done. Any kind of material may be chosen, so long as it is fairly fine without being stiff or hard, and is suitable for the article or garment to be made. Unbleached calico and casement cloth can be inexpensively bought, and the casement cloth is made in a good range of colours; white calico, wincey, haircord muslin, print, a soft make of linen, zephyr, and gingham can be made up into a variety of things which are suitable for junior school work. Crash and house flannel make a good foundation for decorative stitchery if rather coarse thread or wool is used, and being a neutral colour show up bright colouring very well.

The " Piece " Box

A " piece " box should be kept, from which the girls may select small bits of stuff for experimental work, or for carrying out their own ideas, when they have a little spare time. A box is better than a bag because its contents can be easily turned over. It should be wide and not too deep—surface is needed to show the contents, and to allow three or four girls to look for what they want at the same time. Contributions for the box are usually begged from friends, or mothers, or bought cheaply by the teacher out of any fund she may be able to use for such a purpose. On the last day of an annual sale, pieces of all sorts and sizes can be bought cheaply at any large drapery. The remains of a garment made of a pretty material, if washed and pressed, will often cut up excellently, and provide pieces of stuff of really good quality. Odd buttons and bits of strong ribbon are useful for repairs, and ends of wool may be either knitted up or used for decorative work.

To a child accustomed to a poor home and sordid surroundings, the pleasure derived from seeing and feeling pretty soft materials is almost immeasurable. Nothing is more unkind than to forbid touching such things—it is a child's natural instinct to feel and handle anything new and attractive—but the right way to touch and to handle lightly and carefully should be taught in connexion with needlework. The piece box will give opportunities for this as well as for teaching how to choose and combine colours. The stock of pieces and colours needs, however, to be constantly renewed and varied.

General Rules for Plain Needlework

One of the first things which a girl must learn when she begins to do real needlework is to use a needle and cotton correctly. The thumb and forefinger should hold the needle, the thimble should press its head through the stuff, and the cotton should lie under the first three fingers, and between the third and little finger, of the right hand (fig. 1). Good sewing is neat, even, strong, and suitable for its purpose and position. Regular stitches may have a decorative effect, as well as giving strength,

and are often preferable to very fine sewing on this account. The needle and cotton must suit the material and stitch, coarse materials needing a stronger cotton and a coarser needle than finer ones, running and darning a longer needle than hemming or seaming. Where strength is specially needed, the cotton used may be coarser than for other sewing, e.g. button-holes may be worked, and buttons sewn on, with stronger cotton than is used for sewing the same garment.

A few general rules may be followed in doing plain sewing; it is a good plan to teach them at an early lesson.

1. Do not use too long a thread, or it will knot and give trouble.

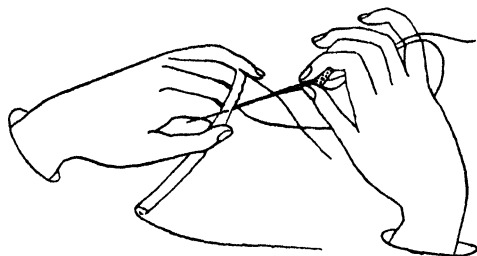


Fig. 1

2. Thread the cotton into the eye of the needle, not the needle on to the cotton.

3. Never use a knot except for tacking.

4. Cut the thread; never bite or break it off.

5. Fix all work carefully before beginning to sew.

6. Finish off firmly and neatly.

Stitches and Processes

Before drawing up a scheme or syllabus for the course of teaching which is to be given to junior classes, it is useful to group the stitches and processes which it is intended to teach, according to the purpose for which each may be used. This plan necessitates considering the whole of the ground to be covered between 7 and 11 years of age, and is specially useful on that account, because it does away with any risk of isolated teaching, and shows the relation which the different stitches and processes bear to each other.

Stitches.—Group 1. Stitches used for neatening or strengthening raw edges. Oversewing, blanket stitch; single turn secured by (a) tacking, (b) herring-boning; double turn secured by (a) running, (b) hemming.

Group 2. Stitches used for joining. Seaming, running.

Group 3. Stitches used for strengthening. Back stitching, stitching, buttonhole stitch, darning.

Group 4. Ornamental stitches. French knots, feather stitch, chain stitch, cross stitch.

Processes.—1. Methods of joining. French seam, run and fell, seam and fell.

2. Methods of fastening. Sewing on strings, tapes, loops, buttons, hooks and eyes, press-fasteners. Making buttonholes and eyelets.

3. Methods of reducing fullness. Draw-string, pleating, tucks, gathering.

Pattern-making

Very little drafting of patterns is now done. Clothes are fortunately very simple, and girls need only a few simple rules about shaping, to be shown how to take individual measurements, and to understand the usual proportions of the human figure. A few guiding lines and measurements are all that is needed to help them to make a foundation pattern, when they know the rules about these proportions and what a correctly

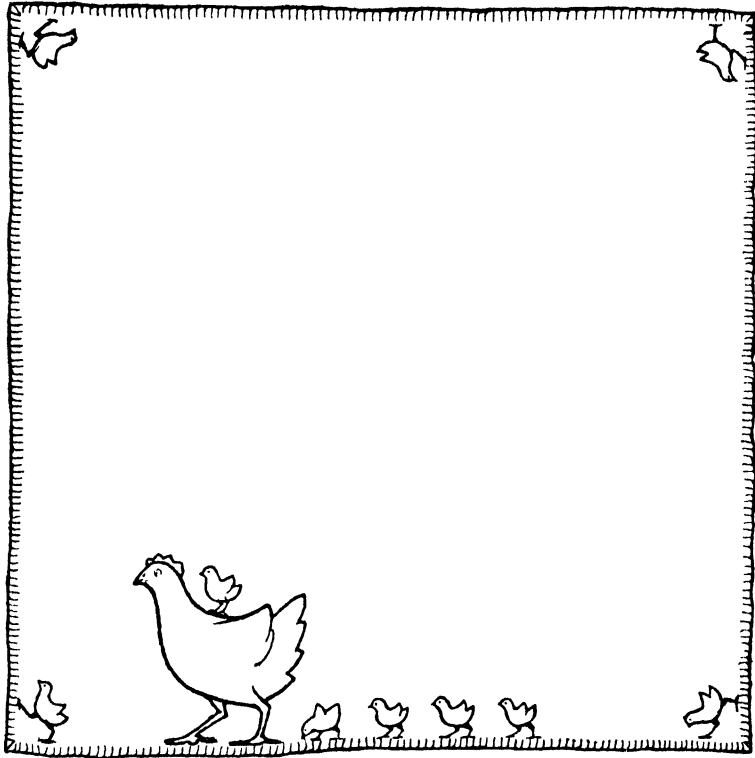


Fig. 2.—Rug. Edge done in Blanket Stitch. Birds in outline or appliqué

cut pattern ought to look like. Paper patterns should always be made before anything is cut out in material. This is essential in order to teach the need for care and economy in cutting, and that size and shape must be correct, so that no stuff is wasted. Free cutting may be used for ornamental work, but cutting by measurement is necessary at first for everything else. Squares, oblongs, and circles can be used as patterns for the first things made, and for applied ornament, in addition to the free cutting already mentioned. Simple curves come next, followed by measuring the figure, and the application of the curves and lines to an easy garment, such as a feeder, bib, and double pinafore. The child is

then ready for shaped garments of the magyar type, which may be made in a good variety of useful things, such as she can herself wear. A divided garment is easily evolved from this type, and a pattern for knickers made. A bodice pattern will probably have to be left for senior school work, though some teachers find it easier than divided garments, and prefer to leave these for later work instead.

Newspaper does very well for first attempts at cutting out. The double sheets of a good newspaper measure 24" by 36", and can be used to represent material a yard wide. The lined paper supplied to schools is usually in sheets 30" by 44". Brown paper is rather too stiff to be easily handled, and is only suitable for cutting out small things.

Whether or not to teach cutting out by drawing patterns in a small size, is a question frequently debated. Beginners do acquire greater facility in shaping, and become familiar with the idea of pattern-making, with the help of some practice of this sort, but like every other expedient, it can be easily carried too far and time spent on such work which would be better used in producing the real thing. One rule which may be definitely accepted, and which applies to all paper patterns, is that they should not be made up by means of sewing.

Knitting

Knitting is work which must be taught in the time allowed for needlework. Every girl must learn to knit, and if she has not begun this work in the infant school, she must do so as soon as possible when she joins the juniors. Knitting is a useful and pleasant occupation for spare time. It is a mistake to give children large, clumsy needles to use when they make their first attempt at knitting. Short bone or celluloid needles are more comfortable, and far less unwieldy than the thick wooden ones so often provided. The wool used should be in bright and pretty colours, and the strips or squares of plain knitting first made can be made into various useful things such as kettleholders, pockets, or covers. Knitting should not be unravelled simply to provide wool for practice. Coarse, unbleached knitting cotton is soft and easy to work with, and the demand for dish cloths is never exhausted. Squares and strips of knitting may be crocheted together on the wrong side, and made into an attractive perambulator or cot cover.

By the time she is eleven years old, a girl should be able to follow printed directions for making anything knitted, and be so encouraged by what she has already made that she will like to keep some knitting in hand, and to do it in spare time. The knitting of socks and stockings, and making knitted garments from measurements, may be left for a later stage.

Notebooks and Written Work

Needlework notebooks should be used from the time the subject is begun. The girls will probably need a good deal of help in formulating

notes; this may be given chiefly in the form of headings under which they can write down what is necessary, or of questions to be answered. Sketches of patterns and of any ornamentation planned for a special garment should be attempted. A record must be kept of all work done either at home or in class, and the amount of material used and its cost calculated, but *the writing of formal or elaborate notes is unnecessary.*

As soon as a girl has learnt something new, she should enter in her notebook what it is, where and why it is generally used, why she herself has learnt it, and how she is going to apply it. It is found a good plan to group stitches and processes under headings showing what their purpose is. Thus, a girl may keep a page or two at the end of her notebook ruled off in columns headed in this way:

Date.	Stitch.	Process.	To be used.	What I used it for.
12.1.30	Herring-bone.	—	To cover hem, single turn.	Face flannel.
19.6.30	—	Binding.	To cover edges.	Shoe-bag.

Or, in another way (tried in various schools with success):

Date.	Stitch or Process Learnt.	What it is used for.
6.5.30	Pleating.	To fit a lot of stuff into a small space and make it look flat.

Entries of this kind enable a girl to tabulate the stitches and processes she learns, and she can refer to her list when she has to decide the best way to make up any work she has to do. It also helps the teacher because, by reference to such entries, she can see whether a girl has had some particular lesson or not, and may be able to make up any omissions caused by absence.

Notes and sketches of work done, or lessons which have been given, are written in the main part of the book. The special notebooks sold as "Needlework" notebooks are not generally necessary; ordinary lined exercise books with fairly good paper do very well, and in some cases a writing-block or pad is found to be very convenient for making rough or very short notes, as it can be used to jot things down without going to a table to write. Stitches need not be drawn in the notebook. The best way to record them is to use a sampler, and any piece of fairly fine stuff on which a tracing will show does for this. Stitches or combinations of stitches used for decoration should certainly be recorded in this way.

Materials

For demonstration purposes any odd piece of stuff, if fairly firm, is suitable, such as harden, coarse book muslin, cheap casement cloth in bright colours, or house flannel. Coarse coloured cottons, D.M.C. embroidery cotton, and thick, brightly coloured wool, worked with coarse darners or wool needles, show up well. Glass-headed pins, $1\frac{1}{2}$ " to 2" long, are required for fastening teaching specimens and illustrations to the

board. Other equipment includes coloured chalks for diagram drawing, coloured paper—blue, green, and red—for illustrating patterns, brown paper for patterns, and a pot of “Stickphast”.

In making outer garments the girls may use coloured casement cloth, nurse cloth, zephyr, printed cottons, tussore, haircord muslin, serge, and flannel; while for underwear, artificial silk and cotton fabrics, calico, longcloth, madapalam, tobralco, viyella, wincey, winceyette, and flannelette are more suitable. Bolton sheeting, crash, canvas, unbleached calico, art serge, cretonne, and coarse linen are all firm and easily handled. For these materials silko, sewing cotton Nos. 5, 36–80, and linen thread, with “betweens” and ordinary sewing needles Nos. 4 to 8, are best. Cutting-out scissors, buttonhole scissors, tracing wheel, blue pencil, measuring tape, irons, ironing cloth and blanket for pressing, are useful additions.

It is usual for material for garments to be supplied to schools by contract. Thus the authorities having selected the firm, patterns and prices of what can be supplied are sent to head teachers, with an order form to be filled up and sent in at specified times during each year. The money which may be spent per head on materials often limits the teacher's choice. It is always wise to make certain that the material supplied is the same quality as the pattern. The quality of all materials used should be at least reasonably good. Poor stuff is always a bad investment, and discouraging to the worker. Lessons on the choice of material should enable a girl to distinguish between good and inferior makes, and should show her the folly of spending time and work on poor material which will neither look nor wear well.

The alternatives to using material provided at school are either for a girl to buy her own, or for the teacher or head teacher to buy from her own purse, and rely on repaying herself when what she has purchased has been made up and the garments sold. A good deal may be said in favour of the first alternative in the case of an older girl; she either takes advice, or has some help in making the purchase. She has the pleasure of making her own choice, of seeing different materials in the piece instead of in a small pattern, and perhaps of paying for it out of money she has saved or been entrusted with. A younger girl who can go with her mother and see what is bought, may learn a good deal, and will also feel more interested than if she has to use what is given to her from the school supply, especially if there are others in her class who are making up exactly the same material in a similar way.

The teacher who buys out of her own purse is able to take advantage of any sale or opportunity for buying cheaply, and she knows just what will be suitable for a particular type of work, or for the capacity of particular girls.

How to choose Material.—When buying material it is necessary to be able to judge of its quality, as well as its suitability for the purpose for which it is intended. The width must be considered in relation to the size of the intended garment, as well as to the price.

Cotton goods are usually from 28” to 36” in width, dress material may

be 40" or wider. Before buying, a careful calculation must be made according to the size and style of the intended garment, and in doing so, the way in which the garment may be cut from a wide or narrow material has to be considered. The old-fashioned plan of always allowing "something over" is not now followed, for clothes are not expected to last so long as in former days. In any case, if a renovation is planned, something fresh is generally added to give the garment a different appearance. Cuttings are usually enough for any mending likely to be needed. The only time when it may be advisable to buy extra length is in the case of garments for little boys and girls, who may quickly outgrow their clothing, and who often wear out two pairs of knickers to one blouse, overall, or frock. Girls growing quickly will need their clothes made with deep hems and good turnings to allow of letting out and letting down.

Besides the price and width of materials, colour and texture should be considered when purchasing. Many of the materials now made are guaranteed to be "fadeless"; where this is not the case, it is well to remember that mauve is liable to be faded by strong light, that light blue does not usually stand much washing, and that fawn and light brown shades show marks or stains very clearly. Red or dark blue cottons may have a good deal of loose colour, and give trouble when first washed unless kept apart from other clothes.

Underclothes and night garments are now generally made of a coloured material instead of white, or trimmed with a colour instead of with lace or Swiss embroidery. All children and young people enjoy bright colours, and this should be remembered, especially when providing material for work which may take some time to complete. In choosing colours to suit individual wearers, a very safe rule is to match the colour of the eyes and to choose a contrast to the colour of the hair. Thus, dark blue suits a fair blue-eyed wearer. The colour of the skin is important, pink or red should not be chosen by anyone with a high colour; and for a sallow complexion a warm shade of brown or yellow is a good choice.

In order to buy wisely it is also necessary to be able to distinguish the various makes of wool, cotton, and linen fabrics. An easy way of testing their texture is to hold a piece up to the light. In the case of linens and calico an even thread is a sign of quality. Pure silk is springy and can be compressed into a very small compass. The pattern in all good printed materials shows through on the wrong side.

Standard of Work Required

To secure fine sewing should not be the aim of any teacher of needlework, for there is a great deal of difference between fine sewing and a style suitable for ordinary work. All sewing should be regular, strong, neat, and suitable for the material and purpose for which it is used. Neat stitches form a decoration in themselves and need not be concealed unless there is a reason for doing so. The practical side of needlework must not be overlooked. Two different methods of securing a satisfactory result

in doing the same kind of work may often be taught side by side: for example, a patch may be hemmed or seamed on by hand, and the result will be neat and strong, but the time spent over the work may have been out of proportion to its usefulness. A patch put on by machine may not look so well, but it will wear just as long and can be finished in far less time. The value of the sewing-machine needs no advocacy, and though handwork will always have a value as such, it is hardly necessary to compare the two methods when much work has to be done. But machine work must be neat and well finished or it is worse than poor sewing by hand. It is natural to some girls to use fine stitches, and if this is the case, there is no need for them to alter their style simply on account of a general rule. It is the striving after fine sewing which must be discouraged. The common-sense aspect of needlework for home sewing should never be lost sight of.

When mending has to be done, it is necessary to decide what the garment is worth. Will elaborate mending lengthen its life and usefulness or not? If not, how can it be repaired so that it may still last for a time, and not look unsightly or untidy? If it is of good material and in fair condition, a fine darn may be worth while. If not, drawing the edges together, or coarser darning, will be the better way to mend it.

Junior Syllabus

Stage 1 (7-8 years of age).—(Work based on handwork of infant school.) Measuring and cutting out squares, oblongs, circles, in paper and material. Distinguishing colours and shades; right and wrong sides and weft and selvedge way of material. How to neaten and strengthen raw edges.

Stitches.—Tacking, running, blanket stitch, oversewing, herring-bone.

Application.—Mats, bags, tray-cloth. Grouped stitches used for decoration.

Stage 2 (8-9 years of age).—Cutting out and shaping. Simple curves; up and down garments. Patterns of feeder, collar, double pinafore. Personal measurement. Joining material. Sewing on strings and tapes. French hems; run and fell.

Stitches.—Tacking, running, seaming, herring-boning, hemming.

Application.—Cutting from pattern, pillow case, bag, pochette, hot-water bottle cover, feeder, collar, pinafore.

Stage 3 (9-10 years of age).—Cutting out pattern of child's bodice, magyar jumper, frock. Ways of reducing fullness. Draw-string, pleats, tucks.

Processes.—Fixed draw-string, pleating into a band, tucks.

Application.—Child's petticoat, princess petticoat, over-sleeves, jumper.

Stage 4 (10-11 years of age).—Cutting out pattern of divided garment: knickers, child's drawers. Ways of strengthening.

Processes.—Facing, binding, strengthening tape, gathers and band.

Application.—Rompers, boys' shorts, knickers, sleeping suit.

Knitting.—Knitting to be taught in the following sequence:

1. Two needles—setting on, casting off, chain edge; applied to making plain strips, to make ties, scarves, hat-bands, dish cloths, kettle holders. Plain and purl; applied to making cuffs, body belt, wrap with wrist cuffs, vest. Increasing and decreasing; applied to making cap, cosy, baby's pilch.
2. Four needles—plain and purl variations, e.g. moss stitch, ribbing; applied to making bed-socks, thumb gloves, child's coat and hat.

Stitches used for decoration.—French knots, buttonholing, cross stitch chain stitch. Grouped stitches. Colour effects.

CHAPTER III

The Post-primary School

It is natural that, when girls are first promoted to a post-primary school, they should feel that lessons have an increased interest and importance, and that the work will be different from what they have already done. In the case of needlework this should certainly be so, and everything must be done to keep up the feeling, and to secure a steady increase of interest in making, mending, and contriving.

In the first place, the needlework room and its equipment will be different. Instead of having the lessons in an ordinary classroom, they will be taught in either a "practical" room or the room provided for housecraft teaching. A practical room should be equipped with tables and chairs instead of desks. There should be plenty of free floor space, and a good light, blackboard space on at least one wall, and good cupboards or lockers, so that work and materials can be neatly stored, or put away safely when necessary. The additional equipment should include sewing-machines, a dress stand, a skirt board, a sleeve board, and two or three flat-irons and some means of heating them, together with the necessary blanket and sheet. Other useful additions are a long glass and screen for use when trying-on any garment, and a small stand to hold a basin, soap, and towel, for emergency use. To a girl of 11, coming for her lesson into a room of this kind, it is evident that needlework in the future is going to be something even more interesting than it has been in the junior school.

The Teacher

In a central school, the teacher in charge of needlework teaching should undoubtedly be a specialist and have a natural aptitude for this work, as well as having been well trained to do and teach everything connected with the subject. The girls must be able to feel that her skill and judgment

are infallible and that she is as enthusiastic about her subjects as she wants them to be. In many training colleges for teachers of domestic subjects, certain students spend an additional year or more in taking a training in needlework and dressmaking, and should then be qualified to teach the subject in a senior school. In this as in all other subjects, however, teaching experience is needed before they can expect to become expert, and a young teacher will find it best to begin under someone who has experience and is capable of organizing and supervising the teaching of the subject, and also willing to help her solve the problems with which she is certain to be faced in the early years of her career.

A two years' course of training, which includes more advanced dressmaking, may be taken at a training college of domestic subjects, but the one year's course, in addition to a two years' course of training in domestic subjects generally, is usually found to be a suitable preparation for a teacher who wishes to specialize in needlework. A training in the other branches is certainly an advantage to her, as not only does it fit her for a post where only part of her time is required for teaching needlework, but she learns a good deal which is likely to be useful to her in connexion with the teaching of this, as well as of the other housecraft subjects.

All teachers of practical subjects benefit by attending "refresher" courses, after a period of continuous teaching. It is helpful to see new ways and new work and to discuss new methods and individual difficulties with the lecturer and with fellow-students, and a certain amount of practical work is also involved.

Time allowed to Needlework

Speaking generally, in a school where the conditions are "average", the accommodation being fairly good, it is found possible, as well as desirable, to give the practical subjects a rather prominent place in the time-table. The girls will for the first year (11-12) probably not give so much time to housecraft as they will be able to give when, at 12 years of age, the definite course in this subject will be begun. Therefore, between 11 and 12, at least $2\frac{1}{2}$ hours a week should be given to needlework, and in some cases—such as the girls who are developing slowly—the time may be as much as 3 hours, and a good deal of handwork included with the actual needlework done. In the two following years, 2-2 $\frac{1}{2}$ hours a week should be allotted, and when a girl reaches the age of 14 the same plan may be adopted as to time as that advised in the case of housecraft (see p. 38). A definite time in each week or month may be set apart which each girl may give to any special work in which she is interested, or which will help her when she leaves school, and either becomes a wage-earner or begins some course of vocational training. The girls should have reached a standard in practical needlework which will enable them to plan and carry out fresh work with little help from the teacher beyond advice and criticism.

Extent of Course

All the elementary stitches and processes used in doing plain sewing should have been already attempted, though it does not follow that every girl will have reached a really good standard in her practical work. A certain amount of time will be needed for revision, in order to make certain that the necessary foundation in theory and practice is fit to build upon. Needlework will gradually be associated with some definite dress-making, as well as with the making of things needed in a house, such as curtains and loose covers. Complete outfits may be made, and the requirements in connexion with clothing of people working under different circumstances and conditions considered. Lessons on infant care and the management of children will necessitate the making of babies' and children's garments. The consideration of needlework as a recreation, learning how to do the ornamental stitches and embroidery used in carrying out work done in the art room, or in painting and drawing lessons, and the designing or adapting of patterns for making various garments, should all be included, so that the time suggested will be all too short to allow of a place being found for so much work. It can be done by girls who have learnt to be independent and industrious, and are interested in constructive work, under the guidance of teachers who want progress and are ready to give new methods a fair trial, and to devote a good deal of time to planning and preparing for the work of each class. In a school where teaching in home management is given, some needlework will be taught during this course, as the girls will do making and mending for the house, and they may also spend time over thrifty contrivances which will involve some sewing. If, however, this teaching cannot be arranged, a place will have to be found for such work in needlework time.

Additional Stitches and Processes

In addition to the stitches and processes which are commonly used,

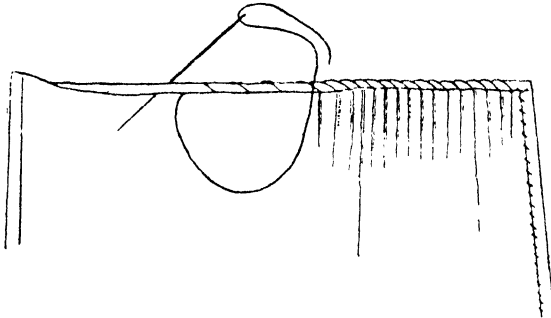


Fig. 3.—Whipping

and which the girls have learnt in the junior school, there are a few additional ones which are used for more advanced work, as this includes

elementary dressmaking. The stitches are: whipping, basting, slip stitch, and back hemming.

The additional processes to be learnt are: striking a thread, putting on a false hem, making crossway folds, smocking, gussets, and machine work.

MENDING

Mending is an art which is worth cultivating, partly from the point of view of economy and partly because there is much satisfaction to be

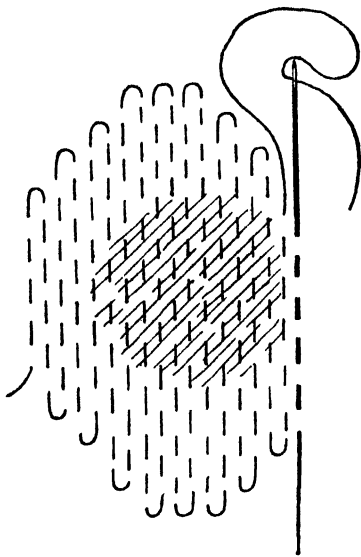


Fig. 4.—Running Darn

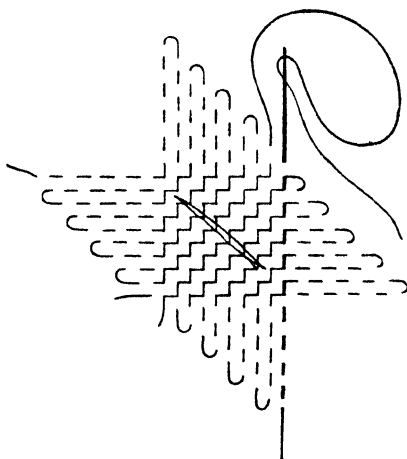


Fig. 5.—Crosscut Darn

derived from successfully restoring to usefulness anything which has needed time and skill to produce. In school work and especially in needlework, girls must be taught to take this view of the need for learning to mend clothing well. Mending may be roughly divided under two heads: (1) patching and (2) darning.

Use of the Sewing-machine

Although the term needlework is generally applied to hand sewing, the teaching of this subject in school should always include the use and care of a sewing-machine. Every senior school should be provided with machines; the number needed will vary with the size of the school, but at least three treadle machines should be supplied where the senior classes are large (40), as well as a hand machine which can be used for small pieces of work if a large machine is not free. It is best to buy a good make and one which will stand use by unskilled workers. (A Singer ¹ is very popular

¹Some good illustrations for teaching the use of these machines are supplied by the Singer Company.

and considered as satisfactory as any.) The free use of a machine does not mean that sewing by hand may be neglected, but unless this is encouraged, it is difficult to keep a girl interested in work which involves long monotonous stretches of hemming and seaming. She wants to get a garment finished so that she may be able to wear it herself or see it worn at home. Machine work is one of the ways by which the buying of cheap ready-made clothes is discouraged. It not only saves time and labour, but gives a strong neat stitch, which is an effective finish to many garments. It must, however, be neatly and evenly done, and joining and fastening off the sewing practised until it is perfect. A girl learning to use the machine may practise first on an odd piece of material, and then on the hems of coarse cloths and towels. It is necessary for her to tack all work until she has had plenty of practice. Tacking must be carefully done, and she has to learn that the machine will not hide defects in fixing.

To learn to use a sewing-machine: (1) Study the handbook supplied and identify the parts. (2) Remove the strap and practise the treadle action. (3) Learn to set and thread the needle and shuttle. (4) Test the stitch on a piece of waste material. A small stitch must be used for fine material. (5) Study the tension. (6) Practise beginning, fastening off, and joining. Before beginning to stitch, and before removing the work, draw both threads to the back under the presser-foot. To fasten off, keep the needle down, turn the work round, and machine back for a little way. If the stitching is done on the right side, the threads should be drawn through and secured with a needle on the wrong side. To make a join, begin the new sewing a little way behind the end of the old sewing and work exactly over it. The ends of the thread of both sewings may be fastened off on the wrong side in the ordinary way.

A very thin material will sometimes be difficult to machine. A piece of tissue paper should be put over the line to be stitched and then drawn out of the stitching afterwards. This will help the machine to "grip" and prevent the work from puckering.

Girls learning to machine must be watched to see that they sit straight, and that the seat is a comfortable height.

A sewing-machine must be cleaned and oiled when necessary, and kept covered when not in use.

Cutting Out and the Uses of Standard Patterns

Girls who have followed out a course of teaching such as has been suggested in the junior school, should be ready to begin more advanced work in cutting out, and to learn to adapt and use a rough pattern without much difficulty.

The first thing they should do is to check and if necessary revise the last personal measurements taken (these will be entered in their notebooks). A lesson should then be given on how to alter this simple bodice pattern they have hitherto used to fit a growing girl, and this will enable them to make a pattern on similar lines for future use. It is no longer considered

necessary to draft a pattern for each garment to be made, as reliable paper patterns can be obtained so easily for a small sum; in many cases they are given away with a magazine or paper. A bodice pattern made to individual measurements, however, makes a starting-point for testing a bought pattern, and may be adapted, without the use of a special pattern, for cutting out all the up-and-down garments likely to be needed.

The knicker pattern already made may be tested in the same way and altered if necessary. Every girl will now be ready to go forward with the planning and cutting out of the work chosen for the next stage in her progress. The measurements necessary for testing the bodice pattern are:

- (i) Length of back, from the nape of the neck to the waist.
- (ii) Width of back, measured across the shoulders.
- (iii) Bust measurement taken round the fullest part of the figure, not tightly.

The measurements needed for testing the knicker pattern are:

- (i) Length from the hip to the knee.
- (ii) Waist measurement and round the knee, taken comfortably tightly.

The rules which apply to all cutting out are simple but important, and are as follows:

1. Use a well-cut pattern which is exactly the size needed.
2. Have a good pair of scissors, pins, tape measure, and blue or red pencil at hand.
3. Secure a good flat surface large enough to lay out the work. If table space cannot be procured, cutting out may be done on a clean floor.
4. Look at the pattern carefully. Pin it in place on the material and see that it is placed the right way of the stuff—the length with the selvedge—and the pieces fitted in for cutting without waste.
5. Mark round the edge of the pattern with a tracing wheel or coloured pencil. Then mark again the amount to be left for turnings. This must be measured accurately.
6. Cut out by this last line with clean cuts.

Paper patterns are usually cut without turnings exactly where the line of sewing is to come. The straight lines of a pattern must always be laid on a straight thread of the material. When pinning the pattern on the stuff, the middle should be pinned first, and the pins put in from the middle to the edge. If the edges are pinned first this may cause the material to pucker. To avoid ragged edges, the scissors should be opened as wide as possible and a quick clean cut made, not short snips. The blade with a rounded end should be held underneath unless very thick material is to be cut, when it is safer to use the pointed blade, as the broader blade may lift the stuff and cause the underneath edge to be smaller than the upper edge.

If two opposite pieces of a garment are to be cut out together, care should be taken to see that one is for the right and the other for the left side. If the material is the same on both sides, they may be cut together and one pinned to face the other. If not, they should be cut separately, e.g. sleeves if cut out together will be both for the same arm unless one can be turned the other side out.

Every pattern made or bought for use should be clearly labelled to show what it represents, the measurement to which it has been cut, and the date on which it was made and used. Paper patterns are liable to become torn, or loose pieces may be detached and lost, unless they are kept in a strong envelope.

How to adapt a Bought Pattern.—A pattern may be altered or “adapted” to fit a figure which is larger or smaller than the one for which it was cut. It must first be measured and the measurement written down, its length, width at the widest part and at the narrowest part, and the size of the neck, armhole, and waist. These measurements must then be compared with those which are to be used, and any differences noted.

To measure a pattern correctly, pin it out on a sheet of paper. If it is too narrow or too wide round the bust, add or take away what is necessary to the back and front pieces, down the whole length of the underarm seam. (If adding width, give a little over half the amount to the front; if reducing, take a little over half from the back.)

Next test the width of the back and across the chest, and carry the altered line over the top of the armhole from back to front. Then test the length of the back and the front. If too long, make a pleat in the pattern from about half-way and do the same to the back piece below the armhole and the waist. If too short, cut the pattern across at the same point, both back and front, and lower the bottom piece to make the length right. If the pattern is much too long, two pleats may be made, the second one across the chest measuring about $\frac{1}{3}$ of the total inches to be reduced. If possible it is better not to alter the neck line. The neck may be made smaller by taking up the shoulder seam, or larger by curving it a little more. Sleeves may be reduced or lengthened in the same way as the front and back pieces are, but always altered in two places if they need much added or taken away—half-way between the top of the arm seam and the elbow, and half-way between the elbow point and the wrist. Patterns may be adapted to make a different garment of the same type, i.e. a bodice pattern may be adapted to make a dress or a jumper or a dressing-gown, or a child's pinafore may be adapted to make a “crawler”.

It is necessary that a pattern should be clearly understood before it is applied to making a garment. A picture of the finished result is generally sold with a pattern, and also a diagram showing how the pieces should be placed on the required length of material. It is helpful for a girl to see the real thing rather than a picture if this can be managed, and the more opportunity she is given for examining finished garments of the

same type as the one she is making, the better able she will be to produce a satisfactory result. It may sometimes be a good plan to pin the pieces of a pattern together, so that the exact position of each may be more clearly understood.

Teaching Methods

A certain amount of teaching should be given by means of demonstration lessons. A good many processes are more easily understood if each stage of the work is followed by the class, and opportunities given for questions by the girls on any point on which they are not clear. The teacher should provide herself with diagrams or pictures showing each step, and refer to them as she proceeds with her work and teaching. She must, however, avoid showing too many things in one lesson, or the girls may become confused, or diverted from the main points which she wishes to keep clearly before them. In some lessons it may be found a good plan to let the girls work out each step with the teacher as she demonstrates; in others, the class may practise what has been taught after the demonstration has been given. When the girls work with the teacher, it is often found that the lesson progresses very slowly, as some girls will get on slowly, and the quicker ones have to wait for them, and are inclined to be impatient or bored. On the whole, the demonstration by the teacher and followed by practice work is in such a case the better plan. She can give individual attention to slower girls, if necessary repeating part of the lesson, and the rest of the class can work on without needing much guidance, each at her own pace.

A criticism of the results is necessary before the lesson can be considered to be complete. For lessons taught by demonstration, it is often necessary for practising pieces to be used instead of part of an actual garment, but if a class or a section of a class can be kept more or less at the same stage in making one type of garment, the new stitch or process may be applied to the work in hand without further delay. It is sometimes helpful to practise the fixing though not the sewing, in the case of a difficult process, and of course no elaborate sewing should be put into practising pieces.

Girls who are making things for which they have bought the material, and who want to get the work finished, are often ready to take it home and go on with the sewing there. The more quickly work is complete the better, for things which are on hand for any length of time often become crumpled and soiled, and the maker loses interest and does not put her best work into what she is doing. It is not, however, generally advisable to allow work belonging to the school to be taken home, unless the conditions are known to be good, and the work is intended for some school purpose such as costumes for a play.

A method of teaching which may sometimes be useful takes the form of a discussion. The best way to proceed in making up a certain garment may well be taught by this means. The choice of materials, and how best

to expend a fixed sum of money when buying what is needed for an outfit, are also suitable subjects.

In the case of slow workers or backward girls, the teacher must experiment in order to find what is the best method to adopt. It may sometimes be best to help individually, and to show a girl who is in difficulties or discouraged over her work exactly how to proceed. A quicker girl can often give help of this kind very usefully, and will realize the points presenting difficulty as readily as the teacher herself, especially in the case of some process she has just carried out in doing her own work. Constant repetition is needed to enable a slow worker to attack what has to be done with any degree of readiness. The danger of this method is that a girl may become very tired of doing the same thing over again, and to avoid this, small differences which do not increase her difficulty but give a fresh aspect to her work should be devised. The kind of material used, the colour of the cotton, and the size of the garment may be varied, and several finished garments shown to enable her to see what her own is likely to look like when it is finished. Care must be taken not to show too many things at once or the girl will easily become confused and possibly discouraged. If she can be helped to reach a stage where she is able to make plain garments sensibly, and to mend neatly, perhaps to understand and carry out simple decoration, a good deal will have been accomplished. Satisfaction in being able to do this, and some liking for needlework as a recreation, will perhaps also result.

Common Teaching Difficulties

In working out any scheme, difficulties are certain to arise, and it is well for a teacher to be prepared to meet them. The most usual difficulties are due to:

1. The varying skill of a class composed of girls drawn from more than one school, or who have reached different stages before promotion.
2. The fact that the garments now generally worn do not provide much scope for the application of some of the more difficult processes in needlework.
3. Want of interest in garment-making. The cheap and attractive garments seen in the shops tempt girls to buy rather than make what they want for immediate wear.
4. The fact that the cost of the material needed for practical work cannot always be met by a poor mother.
5. The need for securing a sale for finished work.
6. Reluctance or inability on the part of girls and parents to provide things to be mended when mending is being taught.

The following suggestions for dealing with these difficulties may possibly be helpful:

1. Girls entering a new school or class should be required to bring with them any notebook already used for needlework lessons, and to show something which they have recently made at home or at school.

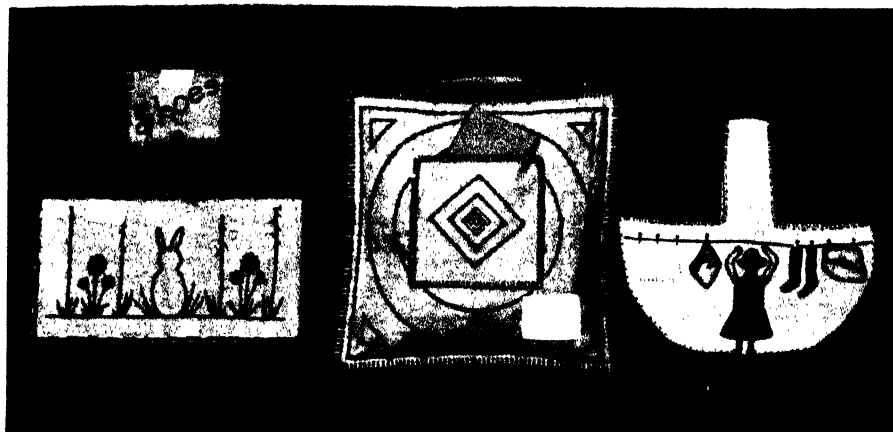
Those who do not do this must work something as a test which will enable the teacher to judge their skill, speed, and readiness. A plan sometimes adopted is for the teacher to show the girls a selection of small things, and to let each choose from among them one which she can either copy or from which she can devise something she wants to make. Another plan is to let each girl choose a piece of stuff from the piece box and see what she can do with it. (It will probably in this case be necessary to help some of the girls with a suggestion.)

2. It may be pointed out to the girls that additional time spent over making will often repay the worker. Thus, sleeves if gathered with a band at the wrist, and fastened with a button and buttonhole, will wear longer and look neater than if made by the easier pattern without an opening or fullness. Again, buttons and hooks take longer to sew on than press fasteners and they need loops, or button or eyelet holes, but press fasteners are not so secure and on a washing garment are almost certain to be made useless by the pressure of the wringer.

3. When a girl has once experienced the joy of the artist in designing and making something pretty and becoming for her own wear, she will not be so anxious to use the ideas of other people, or be content with copying what hundreds of others are wearing. Clothes must (if they are to please her) be in the same style as those generally worn, but need not be exactly the same pattern unless they are part of a uniform. The practical argument to be used in this case is the economy of using good wearing stuff, of cutting out with good turnings which will allow for alteration if necessary, and of having pieces over for mending in case of accident. These advantages cannot be denied.

4. In a poor neighbourhood, or in isolated cases, the problem of finding money to buy garments which might be done without is very urgent. Strict economy in buying stuff and choosing patterns must be exercised. Remnants must be sought, and the girls helped to contrive, so that something within their means may be produced. Orders for work from outside the school are sometimes executed as needlework practice, and within limits this may be allowed. If school funds are available, material may be bought and Guides' or Brownies' uniforms made for general use; or a set of school uniforms which can be worn by the netball team when playing matches. Some schools make sets of babies' clothes as group work, or complete outfits for children and older girls, showing clothing suitable for different ages and seasons. These can be exhibited and explained to mothers on Parents' Days, and sometimes serve as an inducement to provide what is needed in the way of material or to be ready to pay the school for it. The cost of everything made, however, must be clearly shown on each article.

5. Nothing is more depressing to the teacher than to have finished work left on her hands. Everything which can be sold is now got rid of as soon as it is finished, instead of being kept at school until the end of the year or until the work has been seen by someone in authority. When



SUGGESTIONS FOR JUNIOR WORK



SUGGESTIONS FOR SENIOR WORK

Top Row: 1, overall suit; 2, tunic; 3, knickers.

Second Row: 1, blouse; 2, overall; 3, knickers; 4, tunic; 5, Magyar frock with shoulder gusset. (Nos. 1, 3, and 4 from school uniform.)

unwanted or unsold garments have to be disposed of, the only plan is to get into touch with some local organization, such as a Welfare Centre, or Mothers' Meeting, or Women's Institute, or to exhibit the garments at any sale or show where they may possibly find a purchaser. The district nurse may perhaps help to find a purchaser. Many schools have some orphanage, or charity, or society in which they are interested, and the garments which cannot be got rid of may be given with anything else which is collected for these. In the following year it will be as well for the teacher to try some other type of work for practice and vary her illustrations rather more.

6. The difficulty of obtaining things which need to be mended is one which occurs in almost every school. At the present time, very few people want to mend, and it is only in a comparatively small proportion of households that mending is valued and done regularly. Steady effort may result in getting both girls and mothers to appreciate the value of good repairs, but very elaborate mending is not advisable, and time must be considered in deciding how to do such work. If things can be got for mending practice from a few homes, and the fashion set in a school, it will probably help the teacher. The only stipulation to be made is that garments for mending must be as clean as possible, if not newly washed. The outdoor garments of the children will often supply small tasks, such as broken loops, missing buttons, or torn pockets or buttonholes.

Post-primary Syllabus

Stage 1 (11-12 years of age).—Revision of foundation work already done. Patterns tested.

Processes.—Ways of fastening garments, by means of (1) buttons and loops, buttons and buttonholes, (2) hooks and loops, eyes, and eyelets, (3) press studs.

Application.—Knickers, cami-knickers, princess petticoats, cotton frock. Mending and simple repairs.

Stage 2 (12-13 years of age).—Adapting patterns. Testing and altering a pattern. Cutting out sleeves and collars.

Process.—Making and setting in sleeves, putting on a collar, baby clothes, mending by means of darning.

Application.—Blouse with inset sleeve, frock, gym tunic. Mending. Use of a sewing-machine begun.

Stage 3 (13-14 years of age).—Adapting patterns. Renovation. Machine work.

Processes.—Gussets, crossway folds, facings, mending by patching. Machine work.

Application.—Dressing-gown, blazer, school outfit, layette.

Stage 4 (14-15 years of age).—Modelled patterns. Loose covers for furniture. Remodelling garments. Renovations.

Application.—Making curtains and covers. Outfits for work: (1) factory, (2) office, (3) domestic. Mending table and household linen.

Embroidery.—Stitches used for embroidery or decoration which may be taught as occasion arises and used whenever such work is planned:

Cross stitch, crewel stitch, outline stitch, "snail-trail" or knot stitch, variations of chain stitch, feather stitch, herring-bone stitch, buttonhole stitch, couching, satin stitch, pattern darning.

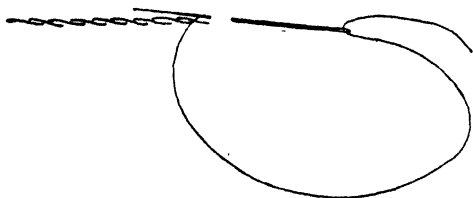


Fig. 6.—Outline Stitch

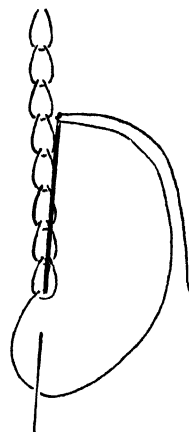


Fig. 7.—Chain Stitch

Knitting.—Continuation of knitting practice. Boys' stockings, men's socks. Working from written directions; shaping and measurements; fancy patterns for stocking tops and jumpers. Baby's outfit, gloves.

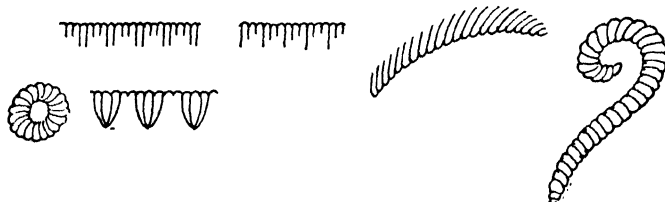


Fig. 8.—Buttonhole Stitch Variations

Alternative Syllabus for Slow Workers or Backward Girls

Stage 1.—Distinguishing ways of stuff, raw and cut edge. How to use measuring tape or ruler and scissors. Cutting out squares, oblongs, or circles in paper and material. Strengthening and neatening raw edges. Fraying, blanket stitch; knowledge secured by tacking; single and double hems; grouped stitches; running stitch.

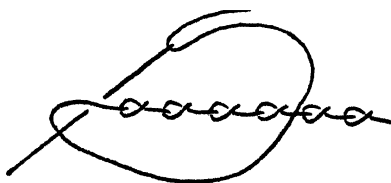


Fig. 9.—Snail-trail Stitch

Stage 2.—Joining two pieces of material together. Running, seaming, hemming, French hems, run and fell.

Stage 3.—Cutting out simple patterns. Work-bag, apron. Use of stitches already learnt, decorative effects. Appliqué designs.

Stage 4.—Cutting out jumper (magyar), frock, petticoat for children. Sewing on buttons and strings. Tape loops.

Stage 5.—Cutting out knickers. Garments with right and left sides

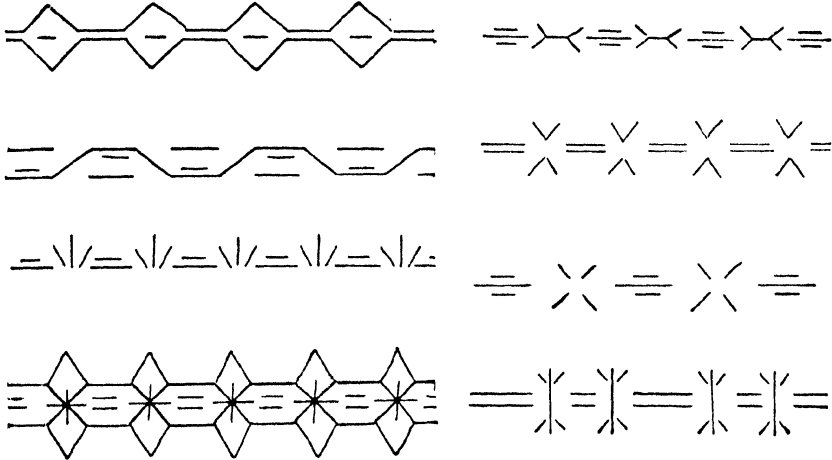


Fig. 10.—Line Work

distinguished; practice in putting them together. Pleating and gathering. Making a band. Setting in pleats and gathers.

Stage 6.—Practice in patterns already used. Cutting out from a bought pattern. Making loops and buttonholes. Sewing on press fasteners. Mending.

Stage 7. — Repeated work. Practice in tacking together different garments. Patching and darning continued. Sewing on hooks and eyes. Marking.

Note.—The use of the sewing-machine may be taught if this seems desirable. All work attempted must be small or simple enough to be finished quickly. Any ornamental stitches which are suitable may be included. It will probably be found necessary to practise stitches or processes once or twice before they are used for making.

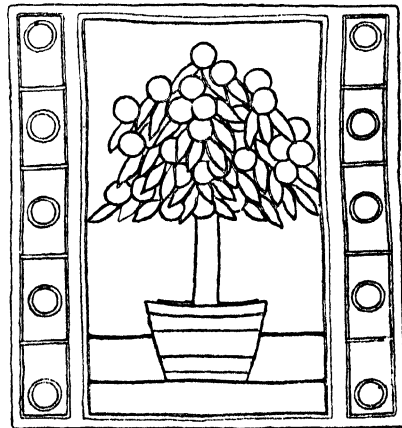


Fig. 11.—Appliqué Work. Piano Back

CHAPTER IV

Decorative Work

Suitable ornamentation by the introduction of colour and embroidery must be considered as a branch of needlework which can be included in the school course. The one idea of ornamenting by means of sewing which some girls have is, to buy a transfer pattern, to stamp it quickly on to a place where it will show, and then cover the lines by some means or other, and in any colour obtainable. They can easily be shown a better way. If they are able to have lessons in drawing or painting from an art mistress, they may learn from her what they need to help them in making simple designs. It is in the school where such teaching is not available that the needlework teacher has to show what can be done, and to help girls to produce something which is a real decoration, as well as suitable for its place and purpose (see section on ART, Vol. III).

When a girl has decided exactly what she needs, and made some attempt at producing a workable design, she should mark it in position by means of a tracing, using blue carbon paper; and if the lines seem likely to rub off, or look at all indistinct, they may be darkened in with a well-pointed lead pencil. When tracing on to material, it is best to fasten the whole work—material, carbon paper, and tracing paper—firmly to the table or a board (either a plain table top or a pastry board does excellently) with drawing pins, before beginning work.

Some of the difficulties encountered in teaching plain needlework will occur here also—notably, lack of interest and cost of material. This may be overcome by introducing group work on a piece of sewing which becomes ultimately the property of the school. This “team system” is stimulating—many girls will do for the school what they would not trouble to do for themselves—and very attractive results can be secured (see fig. 11 and coloured frontispiece).

Materials for Embroidery

Crash, unbleached calico, Bolton sheeting, and linen, both plain and coloured, are suitable for embroidery. Any wools, D.M.C. cottons, and Clark's cottons, work in well, and can be got in different thicknesses and in good colours. Patterns of cottons may be obtained from Messrs. Clark (Paisley) if no agency is convenient. If silk is used, Pearsall's mallard silk is suitable, but more expensive. Artificial silk is not advised although it has a good effect, as it is wasteful, and a skein does not go far.

For borders, it is often easier to work the embroidery in strips which may be sewn into place when finished. Motifs too may be done in the same way. Very helpful advice about designs and how to carry them out is given by Miss J. H. Drew, in her book *Embroidery and Design*,¹

¹ Pitman.

and a study of her methods will enable anyone without an art training to begin to teach decorative needlework on sound lines.

Smocking

Smocking is a form of decorative work and must be included with it. The fullness of any garment may be gathered into a smaller space by means

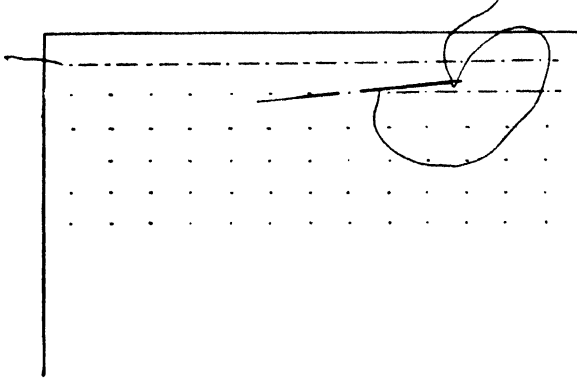


Fig. 12.—Smocking, 1

of smocking, a method used in various patterns and designs on the solid material of which the old smock-frock of the agricultural labourer for generations was made. Smocking takes time, and needs careful fixing before putting in the stitches, but it is a durable as well as an ornamental way of holding fullness, when there is much to be disposed of. The founda-

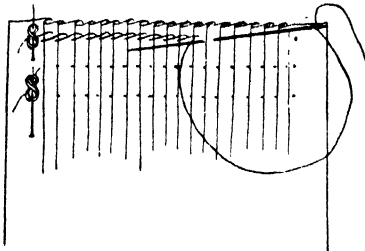


Fig. 13.—Smocking, 2

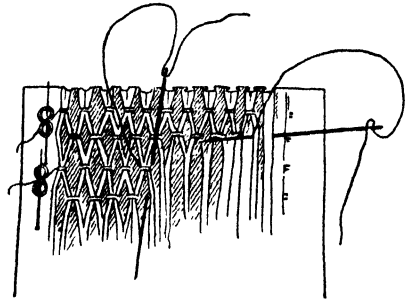


Fig. 14.—Honeycombing

tion of the stitches consists of a number of small pleats, and about twice the desired width when the smocking is finished must be allowed for making these. Honeycombing, when the pleats make a series of diamonds held together by stitched dots, is the most usual method adopted by beginners. The back of the material is marked off in half-inch squares, and each horizontal line gathered with a coloured tacking thread, taking up and passing over half of each square alternately. The cottons are drawn up tightly and secured with a pin, and the pleats sewn in diamonds on the

right side. The first two pleats are sewn together to make a dot, then the needle is slipped down the second pleat to the next row, and the second and third pleats joined in the same way. The needle is then slipped up to the top row under the third pleat, and the third and fourth pleats joined by a dot, and so on until the necessary space is filled with the diamond-shaped pattern.

The pleats may be secured by means of lines of stitches arranged in different ways, or caught by feather stitching, instead of by dots. When the stitching is done, the tacking threads are drawn out. This method is used to ornament children's frocks and overalls, and is suited to a fine material, as the result in anything heavy is rather bulky.

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HOUSECRAFT

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HOUSECRAFT

CHAPTER I

Introduction

Housecraft teaching aims at giving a knowledge of everything connected with the care and management of a house and its contents, and skill in applying this knowledge to home life. It should form part of the teaching given to every girl while she is still at school, because good teaching, and opportunity for putting it into practice, are not often possible in her home; nor can she gain there the foundation of scientific knowledge on which rules are based, and which will help her to work intelligently and without waste of time or strength. Such teaching is necessary for girls who intend to adopt a trade or commercial life as well as for those who are to be domestic workers, because it will help them later so to choose and adapt their surroundings that their way of living may conform to the standard necessary for health and comfort.

A housecraft course should include practical teaching on:

1. The choice, cleaning, and arrangement of a house and its contents.
2. The use and care of the various utensils and appliances.
3. The family budget and the management of money.
4. The purchase, storage, and preservation of food and materials.
5. The planning and preparation of meals and diets, specially considering food values.
6. Home laundrywork, and the care of clothing.
7. Personal and domestic hygiene.
8. The care of invalids and young children, and the use of simple remedies in case of illness or accident.
9. Household sewing and mending; thrifty contrivances; and small jobs about a house.

Housecraft in the School Course

It is generally agreed that definite teaching should not as a rule be begun until girls reach senior school age, and that the first year's work should aim at preparing them for detailed instruction in the separate branches later. Throughout their school life the girls will almost certainly have had

at least incidental teaching on health and cleanliness, and they should be ready for more advanced work on these lines. A weekly lesson of $1\frac{1}{2}$ to 2 hours, in the first year, may be followed by $2\frac{1}{2}$ -hour lessons in the second year; while in the third year, a whole day each week, or continuous work for 4 to 5 weeks in each term, is often found to answer well. The time available during the fourth and last year at school must depend on any vocational course which a girl may be following. She should, however, find time for at least some practical work in the special branch in which she is interested, or needs more skill. It may be desirable to leave the older girls to decide for themselves how much time they can spare for this subject.

Premises and Equipment

The question of premises and equipment must be considered from two aspects, that of the large modern or central school, where a full course of instruction is possible and advanced craftwork included, and that of the smaller school, where only a single room—sometimes one of the classrooms—is available, or where the “practical” room is used for manual instruction as well as for housecraft.

The modern school should have either two domestic rooms, one equipped for laundry and housewifery and the other for cookery, or one good room equipped for all three branches, according to the size of the school. (No class should be larger than 20, and if two teachers and two rooms are available, a class of 40 may be divided and both divisions take the subject during the same period.) If a small house or flat, where home-management may be taught, is added, a complete course of instruction can be given. The house should contain a room large enough to serve as a classroom, a living-room, at least two, if possible three, bedrooms, a bathroom, kitchen, and offices, and should have a tenant, preferably the domestic subjects mistress, at least during term-time, if not as a permanent resident. All domestic rooms should be well lighted and ventilated.

The necessary fixed equipment consists of stoves, both for cookery and for heating water and irons, boiler, sinks with hot and cold supply, cupboards and storage space, dresser, side-table, and drying-rack. Movable equipment includes work-tables, seats (stools or light chairs), and small tables or desks for reading or written work (folding examination tables are convenient), besides necessary apparatus such as a teacher's desk and blackboard, a wringer, clothes-horse, stand for saucepans, and a variety of utensils. All fires must be protected by guards. Equipment in a single room will probably be restricted to what is absolutely necessary. It is better to limit the size of the class rather than the amount of equipment needed for satisfactory practical work. If the room is also used for manual instruction it is well to restrict it to what can be put away, or covered, after use, as carpentry makes a good deal of dust, and cleaning difficulties are almost insuperable.

Stoves.—A coal stove is essential for cookery and housewifery teaching. A small size will suffice if water can be heated independently, but in choosing a stove, the need for an adequate supply of hot water must be remembered. Two reliable patterns are the "Dover Bonnybridge" (Smith & Wellstood), a light make, and "Mrs. Sam", made of heavier metal. An "Ideal" boiler gives a constant supply of hot water, and can be got with a front which will open to show the fire, if desired. It will also carry radiators when necessary. A good stove, very economical to use as it burns very little coal and any rubbish, is the "Cookanheat". It needs very little attention, and is regulated entirely by dampers, so that a poker is not needed and little dust is produced. The fire will burn for days without attention during the night, which means a saving of labour, as well as being an advantage during cold or frosty weather. Where gas is available, full use must be made of it. A cooker large enough for a family of five or six should be supplemented by three or four small ones, so that the girls may have ample opportunity for individual work. (A cooker with hot plate and boiling burner, measuring $22\frac{1}{2}" \times 12\frac{3}{4}"$ and oven capacity of $14" \times 12" \times 11"$, is a suitable small size.) Cooking by electricity is too expensive for general use in districts where power costs more than a penny per unit, but if it is within that price at least two cookers should be provided, one small and the other a family size. If neither gas nor electricity is available, a second coal stove, preferably of a different pattern, and an oil cooker are needed for a class of 20 girls. A pyramid stove is best for heating irons, and also useful for drying clothes. A gas heater uses a good deal of gas, and is apt to vitiate the air of the room.

A popular oil cooker is the "Valor Perfection". It is made in different sizes, according to the number of burners, and has a movable oven. If the directions for its use are followed it is a safe and reliable stove. The "Florence" is also a satisfactory pattern.

Boiler.—The old pattern heated by a coke fire is no longer used for laundrywork if gas is laid on. Some means of boiling clothes must be provided, and a special boiler-pan which is heated on the top of the stove or range is useful for a small quantity of clothes, but a gas boiler is clean and convenient, as the water heats quickly and no stoking is needed.

Sinks and Wringers.—At least two sinks, with hot and cold water-supply if possible, are needed for a class of 20. They should be at least 8" deep, and fitted with plug and draining board, fixed against an outside wall, and with a U-bend in the waste-pipe which should discharge into an open gully outside the wall. The gully must be deep enough to carry the flush of water from the sink into the drain without overflowing. A laundry room should have also a low sink for drawing water and emptying baths. A portable sink may be used if a fixed one cannot be provided, and is a useful substitute. It must have a sufficiently large container which should not be allowed to overflow.

Zinc baths are used for laundrywork and washing up. Fixed wringers are not necessary, but a small wringer with rubber rollers is a convenience. These are made with a wooden stand to which they are fixed. Clamped to the edge of a sink or tub they are not always rigid. A large wringer which can also be used for mangling is a necessary addition to the equipment.

Tables and Seats.—Work-tables must be rigid, with hardwood tops, and not too heavy to be moved about the room as convenient. Each girl needs at least $2\frac{1}{2}$ ft. of working space. A number of small tables, each accommodating 2 to 4 girls, is better than the three large ones often provided. A drawer at the end of each table is a convenience. Seats may be either stools or light chairs which can be put out of the way easily. Folding chairs are not satisfactory.

Cupboards, &c.—Cupboards should have sliding doors, especially where space is limited, and good locks are advisable. Provision should be made for storing perishable food. A good larder or larder-cupboard faces north, is light and well ventilated, and has a stone or slate slab and convenient shelves, the lower ones wider than the upper ones so that what is on these can be easily reached. Laundry equipment takes up a good deal of storage space, and deep drawers and shelves are convenient.

In choosing fittings and utensils, the saving of labour should be considered; stainless steel, enamel instead of brass or steel, a bread-maker, and a washing-machine are suitable illustrations of the appliances within the reach of people of small means. A fire-blanket and a first-aid box should have a prominent place in every domestic room, and their use should be understood and practised.

The House.—The house or flat should be furnished according to the space and money available. It is better not to buy second-hand furniture as a rule; everything should be well made, suitable and attractive. Plain colours are usually best for floor coverings and curtains, but a patterned wallpaper wears better than a plain one. When deciding what to buy, the amount of work likely to be involved must be considered; heavy furniture should be avoided, and no room encumbered with unnecessary furniture, or ornaments which will collect dust.

It is better to furnish the living-room comfortably, and do without a best room or parlour; the extra sitting-room may be simply furnished, so that it is suitable for use by children either for play or for doing homework undisturbed. When no house is available, a staff-room or the occasional use of the schoolhouse may be made to serve for practice in housework. If there are three bedrooms, one is sometimes furnished as a nursery, a plan which makes lessons on infant-care more practical, as well as more interesting.

The Teacher

A teacher of housecraft must be able to do, as well as to teach, everything connected with her subject, and must conform in dress, person, and way of living to the standard she sets before her class in these matters.

In order to become a fully qualified teacher of domestic subjects, it is necessary to take a course of training in one of the domestic training colleges which are recognized by the Board of Education. The course covers a period of two years, and a third year of training is taken by students who wish to specialize in any one branch. Good posts both in this country and abroad are open to a teacher who does well at college. Her salary is calculated on the Burnham scale, and when she has gained experience in a school, she may be suitable for more responsible work as an organizer or inspector of domestic subjects.

It is essential for a teacher of domestic subjects to keep herself up-to-date in her knowledge and methods, and she should keep in touch with her college, and with other teachers, take every opportunity of seeing other schools at home and abroad, and become a member of the Association of Teachers of Domestic Subjects, attending branch meetings regularly, as well as the annual conference of the Association. She must also be prepared to spend some money on new books, on visits to exhibitions, and on attending courses of lectures. The Board of Education and many local education authorities arrange at intervals for short "refresher" courses for teachers, usually during a fortnight beginning at the end of July, or on Saturday mornings during one term, and teachers attending them find the pleasure and benefit they derive well worth the sacrifice of time involved.

An important part of the domestic teacher's work is to see that the girls she teaches take the right attitude towards domestic work at home or as an occupation, and do not look on it as dull and without dignity, suitable only for those who are not clever enough to be likely to succeed at anything else. She must therefore make it as attractive as possible, and emphasize its importance to the nation as well as to the individual. Her dress should be becoming as well as suitable, and she should move about her work neatly and quietly, so that no untidiness or disorder is associated with it. A well-made overall of dark material, blue, brown, or mauve, with cap to match, is generally worn for such work as cleaning a grate or turning out a room, and a washing dress and white apron for cookery. A white overall may be preferred, but is expensive wear, as washing an overall costs more than an apron does. Aprons and overalls keep fresh longer if hung in a cupboard rather than folded and put into a drawer when not in use. A waterproof apron made of cretonne, which clips round the waist and fits any figure, is quickly put on or off, and protects the apron or overall from water when washing is being done. Dress-sleeves should be easily turned up, and may be kept in place by means of elastic armlets covered with white washing material out of which the elastic can be slipped when the cover is washed.

Housecraft teaching involves constant standing, often on a concrete floor, therefore well-fitting shoes with moderate heels should be worn. An Oxford shoe supports the instep and is more restful than the strap or court pattern. Rubbers on the heels lessen the jar to the spine from a

hard floor. An easily reached pocket is a necessity. Patch pockets should be set towards the back of a skirt or they are apt to catch on door-handles or knobs, and tear away the stuff. Pins, including safety-pins, must never show if used to secure apron-strings. The hands need not suffer seriously from the work involved in cooking and cleaning; gloves should be worn when necessary, e.g. for black-leading or for cleaning metals. If the skin is broken a rubber glove will protect it from water, and broken skin must always be protected from dust and dirt. Careful washing and drying of the hands after work, and the use of a cleaning powder and an emollient cream or lotion, will prevent roughness or redness. A wise teacher will take care of her health, avoiding sudden changes from an over-heated room to cold outer air, and remembering the need for a good midday meal after an energetic morning.

Courses of Instruction

The course of instruction must be governed mainly by the time available, the capacity of the teacher, and the conditions of work. Where there is accommodation for teaching the separate branches, cookery, laundrywork, and housewifery, a good complete course, covering a period of four years, may be arranged as follows:

Year 1.—Preparatory work, built on any knowledge gained at home, at school, or as a Brownie or Guide. Cleaning methods suitable for home use, applied to ordinary household equipment; comparison of different cleansing agents.

Year 2.—Cookery and laundrywork. Concentration on one or possibly two branches. Cookery, the more attractive, and probably the more difficult, taken for two terms; laundrywork for one term.

Year 3.—Cookery and laundrywork. More advanced work, followed by the application of the various branches to the management of a house.

Year 4.—Teaching on first-aid, care of invalids and young children, and infant care. Arts and crafts applied to the decoration of a home, and combination of beauty and usefulness. Use of simple tools for odd jobs and repairs. Renovations and contrivances. Occasional periods to be arranged for practical work in kitchen or laundry, in order to keep up the skill and knowledge already gained.

In a school where only one room is available, such a course must be considerably modified, but may be arranged to cover a period of 2 to 3 years very usefully. Less practical work will be possible, and individual practice may have to give place to group work. If the teaching cannot be given as a continuous course, a revision course may be arranged for the last term of school life, either as a weekly lesson or as concentrated work during a short period. If the equipment is limited, mixed work is

always a good way of arranging practical work. The class is divided into small groups and each group is given a different kind of work, either cookery, laundrywork, or housewifery, in turn, a record being kept by every girl of what she has done at each lesson.

Before drawing up a syllabus, it is necessary to know what preparatory teaching has been given, and to consult those members of the staff who are teaching allied subjects, such as science, geography, arithmetic, and gardening. Such informal conferences are very helpful to the domestic teacher, and prevent the isolation of her work. She is enabled to decide the amount and scope of the teaching which may be given in each branch of her subject, and should plan it out to cover definite periods; a month or a half-term is a useful division. Time must be allowed for revision and examinations. There should be an exchange of syllabuses between the domestic teacher and those who are collaborating with her.

Note-taking and Written Work

Two points must be borne in mind in connexion with written work in housecraft lessons: (1) Notes should be as far as possible in the girl's own words, and record the result of her work and observations, as well as any special rules or information which it is important that she should remember. (2) Neat writing, correct spelling, and good arrangement are as necessary as in any other subject. A study of *The New Housecraft*¹ will be found helpful to anyone in doubt as to how to train the girls to make useful notes. The method followed makes it easy for a girl to put her ideas and experience into words by requiring definite information or explanations. Diagrams, plans, or illustrations should be used when needed to make a statement clear. Each girl should keep her own record of the work she has done and its result.

It is better not to have a system of marks for notes or written work, though if this plan is followed in other subjects it ought to be used for assessing work in the domestic class. A written test should form part of the examination. The questions set should test the result of the theory-teaching, and not require any detailed description of a particular process or method. Thus "How would you make (a loaf of bread, or an Irish stew)?" is a bad question; "Starch may be made with either cold or boiling water. Explain what happens in each case. How would you decide which kind to use?" is a better one. Notebooks should be seen regularly by the teacher and any mistakes corrected before a girl begins on a new subject. She should be free to use any of the books kept in the housecraft room for reference whenever she needs information. A note of any book consulted should be made.

In many schools co-operative work results in the production of a book of recipes, or useful hints, gathered from various sources by individual girls who combine in the compilation of an interesting and practical book. Illustrations are supplied by those who are able to paint or draw, and

¹ Pitman.

the book is bound as a piece of handwork. Charts showing food values and the general proportions of certain ingredients needed to make foundation recipes, a season food calendar, and a motto or quotation for the month or the term, are among the illustrations to be found in housecraft rooms. These are, however, of little value unless they are the work of the girls themselves.

CHAPTER II

The Teaching of Housewifery

Housewifery is the branch of housecraft which deals with the choice, arrangement, and care of the equipment and furniture of a house or home. Although this varies in amount and kind, according to the size of the house and the means and position of the occupants, certain rules apply in every case.

General Rules

First choose the house, then allot the rooms. In furnishing, provide necessities first, then consider what other things can be afforded which will add to its comfort or convenience, and make it a pleasanter place to live in. The house chosen should be dry, warm, clean, and airy, getting as much sun as possible, and sheltered from the prevailing winds. (Children and old people should be given the sunniest rooms.) There should be enough bedrooms for the size of the family without overcrowding or using living-rooms at night, a good supply-water, and proper sanitary conveniences. A larder and storage room, including space for a perambulator or bicycle, should be provided. Main drainage and company's water are desirable, and worth the additional costs in rates if they are included. Water for drinking and cooking purposes, if not laid on, should be obtained from a tested source, usually a spring or deep well. If there is any doubt as to the purity of the water-supply, rainwater may be used after it has been strained and boiled, but it should be collected in a clean vessel as it falls, and not from roofs or the ground.

Heating.—The most economical way of heating a house of moderate size is by means of a fire and radiators, the heat being supplied by either the kitchen stove or fire, or the boiler which provides the hot-water supply. Gas fires are largely used as a means of heating as they produce and radiate heat quickly, and are clean and convenient, but gas and electricity are usually too expensive to be used for continuous heating. An anthracite stove is a cheaper way of supplying continuous heat, but needs managing, and as it is fixed in a fireplace, the grate cannot be used for a coal fire. The cheapest and, on the whole, the most satisfactory way of heating a room quickly for a short time, is by means of a portable



A WELL-EQUIPPED KITCHEN SCULLERY
The walls are tiled, and the floor is laid with wood blocks. The coke boiler is fitted with an oven,
and a gas stove is used for cooking.

oil stove. When a fire heats the water-supply, the hot water passing through the pipes and stored in a tank in or near the bathroom helps to keep a house warm; an independent boiler such as the "Ideal" or "Sentry" burns little fuel in addition to household refuse, and ensures a constant supply. The tank is usually placed in a cupboard fitted with shelves for airing linen; it should not be stored there, as the heat will cause it to rot.

Water-supply.—The cold water-supply from the main pipe is led into a cistern at the top of the house, generally under the roof, and in consequence the water is liable to freeze in severe weather. To prevent this, the pipes near the cistern should be covered with a special felt or encased in wood, and the cistern protected by a wooden casing lined with a bad conductor of heat, such as sawdust. Such precautions cost less than repairing burst pipes after a frost. All water pipes should be fitted with stop taps at convenient points, so that the supply may be cut off if a leak occurs. Drinking water should be drawn direct from the main, the tap being allowed to run for a moment to get rid of any water that has been lying in the pipes. The housewife should know how the water pipes in her house are arranged, so that in case of need she may be able to stop the supply at once. There is usually a stop tap controlling the supply from the main near or under the kitchen sink.

Lighting.—Bright rooms with good windows letting in plenty of light and air are essential to health, and large panes of glass let in more light than the small panes of the popular casement window. A glass known as "Vita" glass is now made and allows the passage of the ultra-violet rays which are so beneficial to health. Plants should not be allowed to obstruct the light either in or outside a window.

Artificial lighting is provided by means of electricity, gas, or oil. Candles are now seldom used, as their light, though soft and pleasant, is not strong. Electric light is clear, steady, and convenient, does not affect furniture or plants, and has no smell. All electric light should be shaded or placed so that the strong rays are not in a direct line with the eyes. Electric bulbs need renewing at intervals, and can be bought of varying strengths or "wattage". Economical lighting can be secured by choosing a low-wattage lamp for use where a bright light is not needed. (A 30-watt lamp is probably strong enough for lighting a passage, and 40 watts for a small bedroom.)

If gas is used, an incandescent burner gives the best light. A meter showing the amount of gas consumed, as well as one for registering the electric current used, must be rented from the company supplying it. Gas is measured in cubic feet or in therms. The standard measurement of heat in this country is the British Thermal Unit—the amount of heat required to raise 1 lb. of water through 1° of temperature Fahrenheit. A therm equals 100,000 British Thermal Units. Gas companies must declare how many B.Th.U.'s of heat per cubic foot the gas which they supply contains; it is usually between 450 and 550 B.Th.U. The standard

measure for electricity is the kilowatt hour, or the amount of work done by 1000 watts in one hour, and it is charged for by this "unit".

Apart from the trouble it involves, a good oil lamp provides a satisfactory artificial light. The best make is the "Aladdin"; it is made with an incandescent burner, which needs the same care as when used for gas.

Furnishing a House.—When teaching about furnishing a house, the following points should be specially stressed. Buy only what can be paid for; the hire-purchase system costs more in the end, and there is no feeling of security until the money is paid off. Do not overcrowd a small house with large or unnecessary furniture; there must be space for air and light to enter every room, as well as for people to move about comfortably. It is best to choose what can be easily moved and easily kept clean. For decorating, keep as much as possible to one colour in a room, and avoid many different patterns. If the walls are to be papered, it may be economical to use the same paper throughout the house. A washable distemper is useful, but fresh coats cannot be put on indefinitely, as the wall will not absorb more than a certain amount, and a paper should be hung before this stage is reached.

Kitchen Equipment.—A limited number of pots and pans means less work, and takes up less space than a large variety, many of which may be seldom needed. Everything must be arranged to save labour. A "kitchen cabinet" holds all ordinary materials needed when preparing a dish, placed in the most convenient way, but it is too expensive for general use, and careful arrangement of utensils and materials will answer almost as well. A moderate supply of china, plate, or cutlery, kept in cupboards and boxes, avoids any temptation to use an unnecessary number of things. Earthenware and fireproof-glass dishes and saucepans are a useful addition to the ordinary stock of metal ones, as food may be served in them without further dishing. When buying china services, a stock pattern should be chosen, so that any piece can be replaced without difficulty.

Floor-coverings.—The object of a floor-covering is to secure warmth, to deaden the sound of footsteps, and to give a comfortable look to a room. A covered floor is often less difficult to keep clean than bare boards. Fitted carpets are now seldom used; the centre of the floor is covered with a square, or the whole floor is stained and rugs are spread at suitable points, or a border of linoleum or felt is put down as a surround to a carpet. A border of this kind is an economy, as felt or linoleum costs less than good carpet, and is also more easily cleaned. For staining, the boards should be smooth and even, all holes or cracks filled with wood or putty, and any nails removed. New wood should have a coat of size before the stain is put on. A little methylated spirit will remove any accidental splashes of stain from painted doors or skirting-boards. Linoleum is generally used where a border is not stained. "Kamptulicon", made from guttapercha and cork, is soft and pleasant to walk on, but is more expensive than the ordinary linoleum.

Felt does not make a good covering. It collects dust, and does not

stand hard wear. Matting is not usually found to wear well either, but is easily taken up and does not hold the dust. Carpets may be bought for almost any price, either in one piece or by the yard, with a long or short pile, and with a plain or patterned surface. A "made" carpet in one piece is the most economical to buy as it can be turned round at intervals to equalize the wear. All carpets must be kept clean and treated well, heavy furniture never dragged over them, their position changed at intervals, and any worn places watched and spared or repaired. Children should be taught to wipe their boots well before coming indoors. The use of a carpet-sweeper and a vacuum cleaner, such as the "Hoover", may be taught among labour-saving devices.

Upholstered Furniture.—This should be brushed regularly, and occasionally wiped over with a cloth wrung out of ammonia and water. A vacuum cleaner may be used at intervals to extract the dust. Loose covers keep the covering clean, and are easily removed and washed or cleaned. Any sign of weakness in springs or webbing should be seen to at once, or serious damage may result. The different pieces of upholstered furniture in a room should be used as evenly as possible; changing their position helps to secure even wear.

Beds and Bedding.—A comfortable bed is essential for proper rest. A mattress which begins to sag should at once be put in order, so that a good position in bed may be secured. One pillow made of feathers, not down—which is too hot—is best for young people, and coverings should be light and warm. Blankets in constant use need washing at least once a year. It is well to send very good blankets to Whitney, where they are made, instead of washing them at home. They are there cleaned and the surface made fluffy and soft like a new blanket, for a moderate sum.

Glass and China.—Unless care in handling can be ensured, it is better not to buy expensive glass and china. Glass should be washed by itself and put away into safety at once. Girls who are naturally awkward or clumsy can be taught how to avoid accidents with these breakable things, and may practise cleaning and moving them in order to gain skill and confidence.

Clothing and House Linen.—It is necessary to teach girls to take care of their clothes, and that all clothes in wear need overlooking and brushing regularly. Stains should be removed while fresh, and coats and suits hung on shoulders in a cupboard or wardrobe. Boots and shoes must be kept on trees or stuffed with paper, and must be dried slowly if wet, and cleaned regularly and well. All wet garments should be spread out to dry, after being well shaken, and not worn damp. Clothing should be washed or cleaned before being put away for any length of time, folded carefully in a long shape, with moth preventive put between the folds. Outdoor clothing should not be thrown on beds when taken off; coats become soiled by contact with dirty seats or fellow-passengers, and should be shaken, brushed, and hung outside the bedroom, or in a hall cupboard.

House linen should be looked over before it is washed, and before

it is put away. Each article should be used in turn, and all sets kept together. Cloths and towels should never be allowed to become very stained and dirty, and should be kept for their proper purpose.

Cleaning Materials and Processes.—Before deciding on the best way to clean anything, it is necessary to consider, first, the nature of the dirt to be removed, and, second, the material which has to be treated, as injury to colour or substance must, if possible, be avoided. Water alone will not remove grease; soap used with it emulsifies grease, and makes friction easier by coating particles of dirt so that they are more readily loosened and removed. It also helps to soften water, and thus increases its cleansing power.

For teaching purposes, the various things to be cleaned in a house may be classified under the following heads: (1) wood, (2) metals, (3) stone, (4) glass, (5) china, (6) floor-coverings, (7) furniture, (8) clothing and house linen. The processes involved are: (1) dusting, (2) washing, (3) scrubbing, (4) polishing, (5) brushing, (6) removing stains.

Cleaning a House

The necessary work to be done is usually considered as: (1) daily cleaning; (2) periodical cleaning.

Girls should be taught that, in the daily cleaning of the house, a regular routine such as that given below should be followed, as method in planning and doing the necessary work lightens it and prevents the feeling of being behind-hand, which otherwise harasses the housewife. In a family where there are young children, it is often difficult to keep to a fixed plan, as the care of the children must come first. With a young or fretful baby to look after, a mother may have to decide what work must be done, and what may be left, for the time being, undone. Her daily time-table has to be adjusted to the conditions under which the family are living, and accepted rules can only be followed as far as is possible and under difficulty. Daily work includes tidying, and doing necessary cleaning in the house, such as sweeping and dusting, fires, making beds, preparing and cooking meals, and washing up. In a household where the father has to be at work at 8 a.m., three children to be in school at 9, a child of three to be "minded" at home, the family meal ready at 12.30 p.m., children and husband dispatched again at 1.15, children back for tea at 4.15 and the husband at 6 for a meal, the mother is glad when she can get the children to bed between 7 and 8 o'clock and sit down to do some necessary mending. An ideal time-table would be something like the following:

- 6.15. Rise, dress, light fire, put kettle on, sweep kitchen and passage, get breakfast on the way. Call husband. Finish preparing his breakfast.
- 7.15. Breakfast for father. Children got up and helped to wash and dress.
- 7.45. Mother and children breakfast. Boots cleaned, children tidied and sent to school. Child dressed and fed.

- 8.45. Breakfast cleared away and washing up done. Kitchen tidied. Front cleaned.
- 9.30. Bedroom work. Tidy house.
- 10.15. Shopping. (Child taken out.) Put child to bed for rest.
- 10.45. Preparations for dinner. Special cleaning begun. Dinner cooked. Children home at 12.15.
- 12.30. Dinner.

In the afternoon the mother would have time to herself, and some leisure again in the evening. It is not often that she can arrange things so comfortably.

In homes where the circumstances are better, a good time-table arranges for early rising, time to give to little children, and to planning the meals for next day; heavy work to be begun as early as possible, and finished off before tea; a lighter day's work to come between two heavy ones, and a settled time when the mother can get a little rest and recreation.

Special work is planned as (1) weekly and (2) periodical. Weekly work covers thorough cleaning of kitchen and range and of other rooms in home, special polishing, turning out larder, scrubbing, and window cleaning, as well as the weekly wash.

Periodical work is what need only be done at intervals and is generally covered by spring-cleaning. It is the most difficult work to plan and carry out unless time, money, and extra help are available. The housewife must do her best to carry on the home without more discomfort than can be avoided, unless she is fortunate enough to be able to send her family away for at least part of the time. The important points to consider are: (1) The time. Late spring is usually chosen because fires can be discontinued, the weather allows of certain work being done out of doors, and is not warm enough to make hard work too tiring. (2) Consider what work, if any, must be done by work-people—as papering and painting, repairs, boiler cleaned out, chimneys swept. If anything has to be sent to a cleaner, decide when and what is to be done to it. Look over blankets and bedding. Get in a supply of cleaning materials. Plan how to do the work.

Household Expenses and Accounts

It is necessary for everyone who has money to spend to keep some account of expenditure, and to know, if not in detail, at least with reasonable certainty, how any money coming in has been utilized. The value of account-keeping as a check on expenditure is accepted, but many people find it troublesome to put down every detail when keeping written accounts. For these, a division of income on broad lines may be advised, but it is the spending in apparently insignificant ways which must be controlled, if need for special economy arises.

Those who can count on a more or less regular income or allowance should divide it up according to what they have to do with the money.

Expenditure is generally divided under three heads: current expenses, which include everyday spendings from week to week; occasional expenses, such as quarterly or monthly payments, or the purchase of things which are not needed every week; and contingent expenses, including occasional or unexpected needs for which money is required, as doctors, journeys, &c.

The housewife has to deal with money spent on keeping the house, food, replenishments, cleaning materials, laundry, wages, fire and light, and small repairs. She may also have to buy the children's clothes out of the money she handles. It is only fair to her that she should be given a reasonable proportion of the family income, and that as the family expenses increase, her allowance should also be increased to meet them. It should be found possible so to divide a family income of from £300 to £600 that from half to one-third may be allotted to housekeeping expenses. With a smaller income, at least half must be spent on food, but it is impossible to lay down any fixed rule at the present time, when the cost of living is high, and rent is high in proportion to other expenses. It is best to endeavour: (1) to keep some account of how the money goes; (2) to pay ready money as far as possible for everything; (3) to keep a check on small items of expenditure, and see where little luxuries or extras can be cut out or cut down; (4) to put by a fixed sum each week to meet occasional needs.

In teaching girls about the management of money, it is naturally not easy to gain from them any details of expenditure in their own homes. The teacher must therefore deal with imaginary households when discussing expenses and account-keeping. Many of them will know as well as she herself how the available money may be spent to advantage in a small home. The points to impress are, the need for forethought, careful planning, and watchfulness over spending, no matter whether money is for the time being plentiful or not. The planning of the wage or allowance they are likely to earn when they begin work may be usefully gone into with the girls who are in their last term at school, and what extra money they will need, or can reasonably expect, in addition to that calculated. The difference between earnings when living is included and when it has to be paid for should be made very clear. The cost of hostel accommodation, of lunches away from home every day, and of the extra wear and tear of clothing, as well as the additional cost of clothes when business life is adopted, may be gone into very usefully. The money often spent on amusements, sweets, toilet preparations, and cigarettes should be referred to, and a rough estimate made of what extras really cost many girls, followed by suggestions for other ways in which this money might be used to advantage. In connexion with needless spending, the habit among many young people of giving each other birthday or Christmas presents which they really ought not to afford may possibly be commented on by a tactful teacher. The fact that saving is now compulsory for all wage-earners, and that they are insured against unemployment, sickness, and old age, tends to make people less anxious to save, or at least to keep

any savings for a time of real need. It is not merely necessary to impress on young people the importance of saving. They must also be taught, and constantly reminded, that the wise use of money saved increases its value, and that selfish or careless spending is not only foolish but wrong.

Suggestions for the Teacher

In teaching about housewifery, it is necessary to take as illustration homes of varied types, according to the neighbourhood. A certain amount can well be taught in theory, but a house is needed if the rules given are to be tested and put into practice. No matter how limited the accommodation, it is always possible to impress the necessary things to remember, and, as far as possible, to do, when thorough cleaning must be done. A model house, or even a large empty box, will do to practise repapering or mending wallpaper. Those with little experience of home conditions in a very poor district will find it useful to read *Round about a Pound a Week*, by Mrs. Pember Reeve.¹

The teacher may wonder how she is going to find enough practical work to employ her class without "cleaning" clean things. In the earlier lessons, the utensils and apparatus in the housecraft room will provide all that is wanted; for later lessons the girls are often able to bring a supply of things to be cleaned, or put into order, from home; or they may be able to borrow what is wanted. Such extra equipment as a bed is out of place in the room among cookery or laundry apparatus, and unless the teacher can use a bedroom, or put up a temporary bed when it is wanted, bed-making must be taught with a makeshift, if it is to be taught by demonstration and practice. A staffroom or head-teacher's room may be "turned out" or "spring-cleaned" at intervals; model furniture may be made, or a model house or bungalow is sometimes made and furnished by degrees by the class, as a piece of co-operative work.

It is a good plan to keep in mind any extra pieces of work which can be given to a girl who happens not to have enough to do, such as labelling tins or jars, or packing up a parcel, or cleaning a lamp or gas burner or candlestick. The great thing to avoid is waste of time. It is not advisable to give much time to needlework as such, e.g. making new things, in this course, for needlework gets its fair share of time as a separate subject. Any kind of mending and contriving, however, which involves sewing, should be done whenever possible. The making of covers, curtains, and such things which are purely household sewing must of course be done, and baby clothes may be made to illustrate the infant-care teaching.

Where there is accommodation for teaching "Home-management", the class, which should be small, is generally divided into groups of 8 or 10, and for a specified time each set works in the house or kitchen as house-girls, cooks, housekeepers, laundry girls, and so on, following the routine of a well-ordered home.

A good collection of books and magazines which give suitable infor-

¹ George Bell & Sons.

mation in connexion with their work should be provided for the girls to read or refer to. A family meal is often served at mid-day, and shared by the girls and the teacher. The "family" spirit of give and take, consideration for others, and good manners are things which can well be taught during the housewifery course.

CHAPTER III

Food and Cooking

It is important that every girl should learn to choose food well, and to buy it wisely. All food should be clean, and as far as can be judged, uncontaminated. Perishable foods should be fresh and bought only as needed. The girl should be taught to deal at a well-kept shop, and to notice how the food is handled, whether it is protected from dust and flies, and whether the supply is renewed frequently. When setting out to shop she should know how much she can afford to spend, how many people have to be fed, and what sort of food she wants to buy.

As soon as food is brought or sent home, it should be uncovered, examined, and put away until needed. Remove paper from meat or fish, and cover it with a wire cover or muslin if there is no safe. Put vegetables into a rack or on a stone floor—not near milk; cheese, coffee, and any strong-smelling foods in covered tins or jars. Butter may be portioned out and covered with its own paper. Fresh eggs keep better if greased slightly and put upright in an egg-rack. Bread should be put into an earthenware mug and covered with a cloth, flour in a wooden box or a tin, and cakes in an airtight box.

In the store-cupboard, everything should have its own place—cleaning materials at the bottom and things not wanted daily on the upper shelves. All jars and tins should be labelled to show what they contain, and no food left in paper bags. All foods should be kept cool. A good larder has a northern aspect or is at the side of the house where it is shaded from the sun, the window open and protected by wire gauze or perforated zinc, and good light. The floor should be stone or tiles. A stone slab under the window and good shelves are convenient. No disused articles or rubbish should be put into the larder. Any stale or decomposing food must be removed.

Principles of Cookery

Food is cooked (1) to render it softer and in some cases more easy to digest, (2) to make it look more attractive, so that the appetite is stimulated

and digestion assisted, (3) to make it keep longer, (4) to destroy or render inactive micro-organisms which might be harmful to anyone eating it.

In order to cook successfully, it is necessary for the beginner to follow a recipe, and a good cookery book should be chosen and used intelligently until experience has been gained. Before beginning work, the recipe chosen should be considered carefully. All ingredients must be measured accurately, and added in the proper order; the time to allow for cooking the dish, and the time at which it is to be served, considered; the fire or oven must be prepared; and the right tins or saucepans chosen.

If other work has to be fitted in, the available time must be planned out so that the kitchen need only be left when the food which is being cooked does not need attention.

The Preservation of Food

Food should be eaten while as fresh as possible, but as much of our food comes from other countries, or at least has travelled some distance to a central point for distribution, some teaching on the preservation of food should be given. The addition of preservatives is with very slight exception illegal in this country. Milk, a food which deteriorates very quickly, is chilled in order to destroy the microbes which cause it to turn sour, but which keep in check the growth of the microbes of disease which it may pick up. Cold storage is said to lessen the value of meat as food and certainly takes away some of its flavour. Tinned foods may lose some valuable vitamins, and may deteriorate quickly when once the tin is opened. Tinned meat seems to be the least safe of the many foods preserved in this way. On the other hand, the fact that so many kinds of food can now be bought cheaply on account of their having been preserved in some way, enables many families to have a variety which they could not otherwise afford, and prevents the loss of a good deal of food which might not be needed when ready for the market. If food is kept below freezing-point, germs are prevented from growing or increasing, many of them being actually killed and others rendered harmless. A refrigerator or ice-box is now within the reach of many householders, and ice is manufactured by means of chemicals and easily obtained.

Milk

Milk is a food which deteriorates very quickly and is easily contaminated. The law protects the consumer to a large extent, but there is still much to be done in this country before we can be sure of a clean milk supply. The ordinary person may take a few simple precautions in buying and keeping milk, and these should be especially impressed upon young people: (1) It should be bought in a sealed bottle and "certified" if possible. (2) The dairy may be visited, and the state of the cows, cowsheds, and vessels noted. (3) Any cause for complaint should be noted and reported to the sanitary inspector.

Meals

Food should be taken at regular times, and except for growing boys and girls, one good meat meal every day is enough. The best time to take it is at midday, provided that a short time for rest is possible afterwards. Breakfast need then be only a moderate meal, and the evening meal a light one.

The question of how to provide a satisfactory diet for everyday use has been studied very carefully in this country as well as in Germany and America. Experts are agreed that a good mixture of the foods we commonly eat will supply what a healthy person needs. Where want of money makes it necessary to reduce this, and meat, butter, and milk are cut short or cut out, the diet is unsatisfactory and some form of ill health or disease will result. (Tables showing how this conclusion has been reached will be found in Professor Plimmer's book *Food, Health, and Vitamins*¹, and the figures given may be studied, and used to test the value of any type of meal.)

Suggestion for the Teacher

The importance of good cooking to the health and comfort of a family is inestimable and must be impressed. Bad or indifferent cooking causes waste, insufficient nourishment, indigestion, bad temper or at least irritability, and a discontented atmosphere.

Absolute cleanliness in every detail is essential. All utensils and apparatus must be left perfectly clean after use. Dust or flies must not be allowed to contaminate food. The cook must be particular about her dress, hands, person, and habits, or she is not worthy of her responsible position. Good order and method in working save time and trouble and make punctuality comparatively easy.

The chief difficulties which a teacher may have to face may be due to: (1) imperfect or insufficient apparatus; (2) the varying standards of living in the homes of the girls she teaches; (3) the difficulty of disposing of cooked food in any quantity.

1. A satisfactory stove is essential, as badly cooked or spoilt dishes must be avoided, and certainly never taken home from the class. Before making complaints about a stove, the teacher must be sure that she is managing it properly, that it is properly cleaned and in order, and that the fuel supplied is of suitable quality. An unsatisfactory stove may have been badly set by a local man who does not understand it, or may be in a position where a good draught is impossible. (A stove known to be a make which is satisfactory elsewhere has often been found to be never hot in a particular room.) The makers should be consulted if after attending to such points the stove continues to be unsatisfactory.

2. The use of foundation recipes may make it easy to lessen or increase the proportion of the more expensive ingredients. Skill and ingenuity in producing economical dishes must be encouraged and the cost of meals

¹ Longmans, Green & Co.

of different types compared. Home produce should be used as much as possible.

3. The sale of certain kinds of food is often difficult. The food used in a cookery course should not be expected to pay for itself, though of course as much of the cost as possible must be recovered by sales, and nothing wasted. A school canteen will sometimes take soups and meat dishes, or they may be used for staff lunches, or as a meal for the girls who have made them, or for a school meal. Opportunities for judging the results of their work should be given to the girls so that they may know how things should taste. (Spoon tasting is not very satisfactory.) If cooked food is shown at school exhibitions or on open days, it may serve as a good advertisement and mothers may be more ready to let their girls buy after a lesson. In some schools the girls bring the necessary materials for cookery practice from home more readily than money to buy what they make.

CHAPTER IV

Laundry-work

The teaching of laundry-work gives opportunity for some simple experimental work. The effect of different water-softeners on hard water, of soap and soda on fabric and colour, the advantage of the use of one kind of soap over another, and of dry cleaning in place of washing in the case of certain materials, are some of the points which may be utilized in this way. The removal of stains, which is an essential part of laundry-work, may also be taught by means of experiments. When dealing with the removal of stains it is well to impress the point that, except in the case of unavoidable accidents, care and good behaviour should prevent the spilling of ink, tea, coffee, fruit juice, or gravy on garments or table-linen. Iron mould is caused by contact with rust, and mildew by damp, but both are generally preventable if proper care is taken. Blood and green stain from grass are as a rule due to accident and therefore excusable on that account.

The use of petrol as a cleansing agent has now become very common, and it is necessary to teach how it may be used with safety, as it is highly inflammable and the fumes dangerous. It is economical as it can be used more than once, for if left to stand, any dirt in it sinks to the bottom, and the clear liquid may then be poured off. When done with, petrol should be poured into a hole in the ground, and not down a drain.

Teaching Difficulties

An obvious difficulty is how to secure suitable practical work, especially in the case of beginners. It often happens that girls are unable to bring garments from home, or they forget to ask for what might be kept back

for them from the family wash, or they do not like to bring things which are in bad condition. On the other hand, they may bring very large articles, or too much to wash and finish at one time, and some of their work may have to be taken home unfinished or even untouched. This is disappointing for the mother as well as for the girl herself. The right course undoubtedly is to secure garments from home, and a little tact on the part of the teacher will make this easier for the poorer child. The fact that the clothes brought are very dirty, or in bad condition, must not be allowed to discourage her, and the improvement resulting from their treatment must be praised as the result of good work. It may be easier to obtain children's garments than those of older girls or grown-ups, but the girls soon begin to see the advantage of bringing their own frocks, blouses, and underwear, and of learning to do up these nicely under easy conditions.

The difficulties of managing a family wash when home consists of one or two rooms must be remembered, and suggestions should be made for substitutes in the way of apparatus, and for doing the work under such conditions, as well as for economy in the use of materials and labour. Where money is fairly plentiful and conditions good, the advantages of a table mangle, a washing machine, or an electric iron may be stressed.

A new class may be allowed to look round the room, and to make a list of the different utensils that they think are likely to be needed for making clothes clean. If they have had some housewifery teaching, they will remember how many of these should be used and cleaned, and after comparing notes, a complete list may be made out. Materials may then be dealt with in the same way. Simple experiments with soap, water, and soda may well be made, and the results noted. The care of the boiler and wringer should be demonstrated by the teacher before these are used.

The girls should work separately if possible, each having her own bath or bowl for washing, unless water is scarce or space limited. Class teaching may be given at suitable points, both in theory and practice. It may not be desirable to allow the girls to move about so freely as they may during a cookery or housewifery lesson, because there is more risk of accidents occurring when a wringer or boiling water or hot irons are being used.

A $2\frac{1}{2}$ -hour lesson should be quite long enough during the first term at least. Later, it may be desirable to arrange for whole-day lessons, so that the longer processes may be completed, and work properly finished in the time available.

CHAPTER V

The Care of Invalids, Babies, and
Young Children

This branch of housecraft teaching seldom fails to interest older girls. Simple practical advice only is necessary.

Care of Invalids

Times of illness come in every home, and in serious cases skilled nursing can be secured by either engaging a trained nurse, using the services of a district or village nurse, or sending the patient to a hospital or nursing home. Chronic cases of illness, or people out of health or temporarily disabled, must be cared for by one of the family, and, especially where there are children or old people, someone must be prepared to act in any accident or emergency.

An invalid's room should get plenty of sun, especially in the mornings. The window and door should open easily, and the window should have well-fitting sashes or frames. There should be a fireplace in which a fire can be lighted, and no superfluous furniture or ornaments to keep clean. The floor is best either covered with linoleum or stained. A hearthrug, and a mat on which to step out of bed, will give the necessary comfort. A steady table beside the bed, a comfortable chair and footstool for the use of the invalid or the nurse, a washstand, and a commode are convenient, and make the room sufficiently comfortable. A bed-table, with oblong top and four short legs, makes meals easy to manage, and a book-rest with extending ends may now be bought, which is easy to adjust.

Points to Teach.—Early in the day, attend to the washstand, do the grate, and light the fire if necessary. Later, clean, dust, and tidy the room. To clean the room, remove rugs, cover the bed with an old sheet or dust sheet, clean the grate; dust the floor with an O-Cedar mop or damp cloth wrung out of Sanitas and water; wipe over the paint work with a similar cloth; dust and rearrange the furniture, and replace the rugs after shaking them out of doors. See that the patient is comfortable and has everything likely to be needed within reach. When moving about the room, avoid unnecessary noise and bustle; do not creep about, whisper, or hesitate over what has to be done. Try to give an impression of competence, even when feeling the reverse.

Fresh air is even more necessary for an invalid than for anyone in health. The window should be kept open a little way if possible, and a "costless" ventilator used if a sash window, as this lessens the danger of draught. A casement is more difficult to manage. If the weather is cold, wet, or very windy, nail a piece of thick cloth to the edge of the window, open it as far as desired, and fasten the other edge of the cloth

to the frame with drawing pins. A fire kept burning helps ventilation, as well as warming the room.

A strong light is too trying for the invalid's eyes. A screen may be used, or the bed turned, as it is better to admit the sunlight than to draw the blind. Artificial light should be shaded.

Every effort should be made to interest and amuse those whose health prevents them from sharing in ordinary family life. Visitors should be admitted with discretion, and never allowed to stay too long. A fresh picture, or ornament, or cushion, or wrap, makes a little change, and anyone waiting on the invalid should be careful to dress suitably, but as nicely as possible, and to look her best.

When giving lessons on the care of an invalid to schoolgirls, the teacher should distinguish between actual sick-nursing and the performance of the simple duties which may fall to the lot of any untrained person. If she teaches these, the girls will be prepared for more advanced teaching later, and they should be urged to join an evening class, and prepare for an examination, if they have an opportunity for doing so after they leave school.

Food and Medicine

A few general rules which will help anyone responsible for giving food and medicine to an invalid should be taught. Unless a special diet is ordered by the doctor, food which is light, not strongly seasoned or sweetened, and which provides a good mixed diet including milk and fresh fruits and vegetables, is generally suitable. Reheated meat and foods of close texture, e.g. hard cheese and liver, should not be given. Eggs should be lightly cooked, steamed, scrambled, or poached, rather than boiled. If only a small amount of food is taken, it is important to see that the necessary proteins, carbohydrates, fat, and mineral matters, are included. The best meal of the day should be a midday dinner. The invalid's food should be varied as much as possible, and always daintily served. No food should be kept or prepared in the room, and all signs of a meal removed as soon as it is ended.

Drinks are chosen to allay thirst, to act as a stimulant, or as a means of giving nourishment. Lemonade, fresh water, and barley water are good thirst-quenchers. Tea, hot milk, and beef tea act as stimulants; meat juice, and the various preparations containing or made with milk, convey nourishment. A thirsty invalid not allowed much to drink, may find relief if the lips are moistened with glycerine and water, and the mouth rinsed with a mouth wash.

The rules for taking medicine are simple, but they are not always observed. It is *most* important that all remedies should be taken as and when directed. A medicine glass or spoon, some water, and in some cases something "to take away the taste", should be kept with the bottles. It is best to keep medicines in a cool place, and not on the mantelpiece if a fire is burning. Anything for external use should be kept apart from

other bottles, and poisons put away. Before giving medicine, read the label, and look at the clock. Invert the bottle once or twice to mix the contents. Do not shake it violently. Measure the dose by the marks on the bottle or medicine glass; unless these are placed on a flat surface, it is impossible to measure accurately. Use a drop measure or clean pen-filler for measuring drops. Pour from the side of the bottle which is not labelled, as this keeps the directions unstained, and legible. Cork the bottle well and put it in its place. The glass or spoon must be left clean.

An invalid should *never* try unknown medicines without the doctor's knowledge, *never* drink from the bottle, *never* take a double dose to make up for one missed.

Any directions given by the doctor should be written down during or immediately after his visit.

The Medicine Cupboard and First-aid Box

Teaching on the choice and use of the simple remedies and appliances which should be at hand in every home should be included in the housecraft course. A medicine cupboard may be made from an empty box, provided that it has a well-fitting lid; if the box is turned on its side, the lid forms a door, a shelf can be fitted, and a lock and key supplied. The first-aid box need not lock, but should have a good lid. Both boxes need to be smoothed on the surface both inside and outside, either with a plane or sandpaper, before they are painted with white enamel paint.

The medicine cupboard should contain such simple remedies as castor-oil, croup mixture, eucalyptus oil, camphorated oil, genaspirin tablets, boracic acid crystals, a disinfectant, a medicine glass, and a clinical thermometer. The first-aid box, which will probably be needed for cuts and bruises, burns, scalds, or sprains, should be supplied with clean rag, lint, cottonwool, roller bandages, sticking-plaster, a bottle of iodine and brush, boracic ointment, carron oil, oiled silk, and smelling salts. A pair of scissors, a needle and white cotton, and safety-pins of different sizes will also be necessary. The making and equipping of the cupboard and box, which should be done by the girls themselves, provides a useful piece of practical work necessitating neatness and accuracy. A list of the contents should be fastened to the lid of both cupboard and box, and the stock checked at intervals and renewed when necessary.

Care of Babies and Little Children

Practical teaching on the care of babies and little children may be given on the following lines.

Like all human beings, babies need a good supply of fresh air, enough of the right kind of food, suitable clothing, exercise and rest, and cleanliness of body clothing and surroundings. They need more external warmth and more sleep than older children do. The first thing that a newly born child is expected to do is to cry. It is necessary to distinguish

the different kind of cries, to understand what they mean, and to remove their cause if possible.

Food and Feeding.—If a bottle has to be given, it must be freshly prepared. The right amount of food should be measured and warmed, ready at the proper time. Meals *must* be given regularly. The baby is held on the left arm, and the bottle in the right hand. If the feed is not all taken, what is left should be measured. It must not be used for another meal, or kept in case the child will take it later. A baby must be nursed while it feeds. The meal should take about a quarter of an hour.

Food should be heated to blood heat, 99° F., and the teat must be tested to see that it is drawing properly. The advice given to the mother at the welfare centre as to the right food to give her baby must be followed exactly. Bottles must be kept absolutely clean. The boat-shaped bottle is now the only pattern recommended, as it is easy to keep clean and to use. It should be graduated and clearly marked on the outside to show the quantities it may contain.

As soon as the teeth begin to appear, the child is ready to begin more solid food, and it must get food which provides good body-building material and fat, and includes Vitamin A. Any deficiency in these may result in rickets, or retarded development. The progress which it makes, and its general health, are safe guides as to whether or not it is being properly nourished. Here again the proper attitude towards the welfare centre should be developed in the girls.

Any plain food is suitable for the older child provided he gets some meat, eggs, milk, good butter, brown bread, fresh fruit, and vegetables; he should not have tea, coffee, or condiments. Sugar should be given instead of bought sweets, and meals should be regular with no eating between times. *The Mother's Cookery Book*, compiled by the Association of Infant Welfare and Maternity Centres, gives a good variety of simple dishes suitable for children.

Clothing.—A baby's clothes must be designed to keep it evenly warm, and to allow natural movements freely, as well as room for growth. Special clothing must be kept for night wear. Clothing should, if possible, be made entirely of wool or woollen material. A set of good patterns for a single outfit is supplied by the National League for Health, Maternity, and Child Welfare, 117 Piccadilly, London, W., and costs 1s. The all-knitted outfit is the cheapest to make, but such clothing is of little use unless the girls are taught how to wash and take care of it. All garments must be easy to put on or take off; there must be no strings round the neck, or tight bands, or hard buttons which may hurt, and the chest, arms, and stomach must be well protected. As the child grows older, the same rules about clothing may be followed. Shoes must be carefully chosen, made the shape of the foot, and never too short or too loose. Children should have shoes to wear indoors when once they begin to walk, as well as an outdoor pair. Every child over two years should be given a pocket, and a clean soft rag or handkerchief, which it must learn to use.



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TESTING MILK



Reproduced by the courtesy of the National Council for Maternity and Child Welfare

DEMONSTRATION BABY DOLL

The Toddler.—No course of lessons on home-management is complete without some teaching on the care and management of young children. This should not be confused with "Infant Care", although simple information about this must be included. It is often found that the syllabus outlines a number of lessons on the care of an infant from its birth until it ceases to take food from a bottle, but only one or two which deal with the care of the baby and the "toddler".

Every girl is interested in babies, and a good many will have home experience to go upon. Mothers now so often have the chance of attending an Infant Welfare Centre that they know far more, and manage their babies far better, than formerly. It is the "old" baby who is so often under the big sister's care, and for whom she should be largely responsible. She needs to be taught how to manage little children and how important good training is to them.

Equipment.—The apparatus needed for the lessons is simple, and much of it should be home-made. Preparations for the baby's arrival make a good starting-point. Clothing may be made jointly by the class, a crib or cradle and basket prepared, and things likely to be wanted for the baby during its first months collected. The cost of such preparations should be calculated, and things which may be done without, if money is scarce, distinguished from what is absolutely necessary.

One or two jugs, basins, and cups, a measure, a large oval pulp bowl and stand, a low chair, a kettle, thermometer, and sewing materials, are practically all that is needed to begin with. The help of the boys should be enlisted, as they may be able to make the stand for the bath and cradle, the frame for a screen, and to cut down the legs of a cane-seated chair to a comfortable height for nursing.

The one expensive item is the model baby. The only satisfactory model can be got from the office of the National Council for Maternity and Child Welfare, 117 Piccadilly, London, and costs 39s. 6d. It is just as well not to show this model for the first lesson or two, until a set of garments and the other necessities are made, and the girls understand how the work of caring for little children should be looked upon. The model is well worth the money charged, for it looks and feels, as well as weighs, the same as the average healthy baby should. With such a model, it is easy for the girls to learn how to hold a baby properly, and to become accustomed to doing so.

Syllabus.—The following course of lessons on child management, including the care of young babies and the toddler baby up to 5 years, was successfully used at West Street Homemaking Centre, Sutton, Surrey.

General Management and Care.—Food, clothing, cleanliness of body-clothes, air and surroundings. Daily bath, sleep, and rest, sunlight and fresh air, exercise, habits. Knowledge of simple ailments.

Food for Babies.—Natural and bottle-fed babies. The merits of natural versus bottle feeding. What statistics prove with regard to these. Bottle-fed babies: kind of milk to provide; how to prepare it; times of feeding;

quantities; feeding by the clock; special need for fruit juices to provide vitamins for bottle-fed babies; value of cool boiled water; best kinds of bottles; how to prepare a bottle; how to clean and store bottles.

Food for Older Children.—Suitable diets; times for meals; forming good habits, e.g. no eating between meals; no encouragement of wrong tastes.

Clothing for a Young Baby.—Kinds; long, short, and all woollen sets.

Clothes for Toddlers.—Simple patterns; cost and making of clothes. Washing and general care of baby clothes.

Bath.—Preparations; suitable times for bathing young babies and older children; order of bathing; proper positions for holding the baby.

Fresh Air and Sunlight.—Necessity for cleanliness of air and surroundings; well ventilated, sunny rooms, and as much fresh air as possible.

Sunlight and Health.—Stuffy hot rooms to be avoided at night as well as during the day. Hood of perambulator should not be up unless it rains. Baby should lie raised up from the deep well of perambulator.

Exercise.—Necessary for proper muscle development and growth. Allow ample scope for natural exercise. Avoid all restrictions of tight clothing.

Sleep and Quiet.—Important for proper development. General rules for sleep and resting. Avoidance of loud noises, undue excitement, attracting attention to objects, tickling, &c.; consideration for baby's nerves. Cot or bed; must be separate; best position; necessity for keeping bedding fresh and clean; how to make up a cot; improvised cots.

Habits.—Importance of early training; physical and moral aspect. Evils of the "comforter", rocking, and constant amusement.

Ailments.—Baby's cries and what they mean. Treatment of simple ailments.

Care of Toddlers.—Death-rate among children highest between 2 and 5 years. Need for individual attention. Care of the teeth. Importance of diet, suitable clothing, and enough sleep and rest. Safeguarding children from accidents, especially fire. Need for providing enough suitable amusements.

CHAPTER VI

Specimen Lessons and a Comprehensive Course

Lesson on the Choice of a House

The following lesson is suitable for a class of senior girls who have had a full course of instruction in cookery, laundry-work, and housewifery. It might be given as a concluding lesson, or as an extra lesson during a period of revision work before leaving school. The class should be told

the subject of the lesson and should come prepared for a discussion. (A good neighbourhood is assumed.)

1. Subject recalled and girls asked what they have been able to do about getting information. Choice very limited especially in towns—rents very high. People who can save a little money try to buy a new house—a sum paid down and the balance by instalments. Is this a good plan? If so, under what circumstances?

2. How to find houses to choose from. Building land and town planning. Garden cities. Anyone passing through the suburbs or outskirts of a town will find new houses going up fast, in groups or “colonies”, or along the sides of the main roads—“ribbon building”. Which appears to be the better place? Suggest reasons.

3. Site. Position very important—house must be convenient for work, schools, shops, and for omnibus or train. Not too near a river or factories—refer to flooded areas and smoke pollution. Should not be low down in a hollow; should be on dry soil; should get plenty of sun. Neighbourhood should be reasonably good.

4. Find out how it is proposed to lay out the land. Builder will have plans approved by the District Council. If building in progress, see the Clerk of Works. Ask about water-supply and drainage.

5. Consider the different styles and sizes of the houses. Probably very varied. (Does this make any difference to the cost?) Is a house to be preferred to a bungalow? Gain ideas and reasons from the class and tabulate, e.g.

- (a) A bungalow costs less to build than a house but occupies more ground in proportion to its size.
- (b) It is more easily worked, but is colder—(number of outside walls; less warmth gained from hot-water supply).
- (c) It has no stairs, but loses the advantage of the staircase for ventilation.
- (d) Its windows are close to the ground, and cannot be left open safely if no one is at home.
- (e) Its rooms are close together, so that there is more noise and less privacy than in a house.

6. Size and accommodation. There must be enough room for the family and also for the furniture if this is not to be changed. Discuss with the class what rooms will be needed by families of different size and ages. Points to impress: there must be enough bedrooms without using sitting-rooms at night; a good living-room; provision for bath and hot-water supply; somewhere to keep food; space for children to play out of doors; convenient sanitary accommodation reached under cover.

7. Some things the housewife should find out: (1) the kind and size of cooking stove supplied. (2) The arrangements for heating water. (3) What cupboards there are. (4) Where the perambulator can be kept. (5) Whether the road will be made up reasonably soon if this is not yet done.

(6) Whether refuse is removed regularly. (The class will probably supply some of these points.)

A sketch plan of a small house or bungalow should be made in class if possible—if not, as homework. The lesson may be illustrated by means of (1) a plan which shows the way in which a piece of building land in the district is plotted out. (2) A plan of a small house arranged in a way which will illustrate the conclusions reached during the lesson. This plan may be drawn on the blackboard as the lesson proceeds.

Lesson on Cooking Green Vegetables

This lesson may be given early in the course since it is based only on knowledge gained from home experience and from class lessons on boiling water, milk, milk and grain. Any green vegetables in season will be useful as illustrations. The teacher should work with the class and may proceed as follows:

1. Write down on your slips any six vegetables you can think of—what special difference do you notice between them? Can you separate them into groups? Vegetables are classed as (a) green, (b) root. (Specimens of dried vegetables shown and a third class suggested.) How do they grow? Where do they get their food? The earth is the source of all our food. Have you heard it called “Mother” earth? Suggest a reason. Plants draw from the ground the nourishment they need and store it up in a form suitable for human beings and animals.

In green vegetables we eat the part which grows *above* the ground. Green vegetables are best when freshly cut from the plant. (Advantage of a garden, or of buying from the grower.) Test for freshness—leaves a bright colour, crisp, and break off easily; smell fresh. If bought from a shop or barrow, outside leaves should be still on—can you suggest a reason for this rule?

2. Preparation of green vegetables for cooking: Something else likes green vegetables for food—where will they be found? How can we get rid of them? What else must be washed away? Rules formulated: (a) Trim off coarse or broken outside leaves and hard stalks. (Are these of any use? If not, what should be done with them? Impress that they must not be put into the dustbin and gain reason.) (b) Cut large vegetables, as cabbage and savoy, into 4 quarters lengthways. Cut a wedge out of thick stalks, as cauliflower. Cut off the rough stalk of sprouts. Remove stalks of winter spinach. (c) Wash in cold water; leave to soak for 20 minutes in strong salt and water to kill insects. Green vegetables prepared by class working with the teacher.

3. Cooking. What result do we want? How are we to get this? What else have you cooked by moist heat? What will cooking in boiling water be likely to do besides softening the fibres? How do you know this? We know from the condition of the water that something has been taken out of the vegetables. A method of cooking which keeps in as much of the food

value as possible is called the "conservative" method, or "conservative cookery". (Look out this word in your dictionary.)

Preparation of saucepans. Rules for boiling revised. Use of salt taught. Proportions. Rule about covering pan—vegetables which grow above ground do not require a cover; those which grow under ground do.

Time noted and cooking begun. Attention called to scum which rises—must be removed. Test with a skewer. Vegetables should only be cooked until just tender, not soft. Explain reason for this.

4. Serving. Think about serving. Rule—"Hot foods served hot". Dishes put to heat.

5. Finishing off. Draining shown. Condition of water noted (colour, smell, taste). Vegetables dished and results compared. Invite questions.

6. Experimental work with waste leaves: (1) bake in oven; (2) boil with lid on; (3) steam over boiling water; (4) add soda to water for boiling. Note and compare results.

One Year's Course in Housecraft

The following suggested headings will be useful in drawing up a scheme of elementary housecraft for a whole-time course of one year:

- A. Simple knowledge of micro-organisms as they affect the household.
- B. Cleaning and the practice of cleanliness.
- C. Kitchen and equipment.
- D. Cookery and meals.
- E. Clothing, house-linen, and laundry-work.
- F. Planning and doing of household work embracing all or some of the above.

Sections A and B are of primary importance and are essential to the rest.

In working out a scheme on these lines, the amount of matter which can be taught will vary with the class; the work set out can be completed within a year (whole-day lessons), or the equivalent time by a good average class, working under reasonably good conditions. A very good class may achieve more; with a weak class or difficult conditions, possibly less will be accomplished.

The teacher should decide for herself in what order to take the different sections and subsections of the syllabus, and should then indicate in which of the three terms of the year's course it is to be taught, by putting a "×" in the appropriate column (see p. 66). In doing this it is well to bear in mind the importance of: (a) Teaching from the first correct methods and habits of work. (b) Teaching simplest manipulations, simplest processes, and simplest theory first, leaving work requiring most skill, most knowledge and judgment to the last. It will be necessary to prepare for each term a careful list showing what housewifery, cookery, and laundry-work is to be done, in order to see that (a) the work is duly graded and varied, and that one lesson leads naturally to the next, (b) no essential

matter or work is omitted, (c) sufficient revision and repetition is arranged for the work to reach a good standard.

Throughout the year's work the following will obviously be important:

- (a) Clean, neat, and finished methods of work.
- (b) Study of saving of labour, fuel, and materials.
- (c) Training in forethought, and in methodical planning and carrying out of work to be done.
- (d) Training in exercise of judgment and in becoming independent and responsible workers.

It is assumed that in planning the work the teacher will first find out what science, hygiene, or domestic economy girls are taught as part of the school curriculum.

		TERMS.		
		1st	2nd	3rd
SECTION A.—KITCHEN AND EQUIPMENT				
1. <i>Kitchen</i> :	lighting, ventilation; daily and special care.	×		
2. <i>Larder (or pantry)</i> :	store cupboards; arranging to economise labour; how food is contaminated (outlines only); daily and special care.	×		
3. <i>Equipment</i> :				
(a)	Placing with a view to saving unnecessary work, e.g. pan shelf near sink, consideration of height of stoves, sinks, tables.			×
(b)	Construction and management of coal and gas (or electric) stoves.	×		
(c)	Construction and management of wringing and mangling machines, boilers, &c.		×	
4. <i>Utensils</i> :	importance of good, labour-saving utensils; choice and construction (e.g. steamer, &c.) and care.		×	
SECTION B.—THE PRACTICE OF CLEANLINESS				
1. <i>Sources of dust, dirt, and grease</i> :	constituents harmful to: (1) health, (2) houses and furnishings.	×		
2. <i>Importance of personal and household cleanliness</i> :	special instructions for personal cleanliness and neatness for housecraft.	×		
3. <i>Cleaning Agents</i> .	(Action and use illustrated by simple experiments.)			
(a)	Water; hot and cold.			
(b)	Grease removers: (1) soda, soap, soap powder, &c.; (2) paraffin, turpentine, &c.			
(c)	Friction agents: e.g. emery paper, bathbrick, ashes, sand, whiting.			
(d)	Dirt preventing (or preserving) agents: e.g. varnish, paint, Brunswick black, &c.			
(e)	Fresh air; use in purifying and bleaching, e.g. dish cloths, brushes, fabrics.			
4. <i>Cleaning Processes</i> .	General methods of using above agents in cleaning different materials.			
(a)	Wood (plain and painted).			
(b)	Metals (e.g. brass, copper, zinc, steel).			
(c)	China and glass (including windows).			
(d)	Brushes, &c. (household and personal).			
(e)	Textiles: (1) Cotton and linen (coarse, e.g. tea towels, dusters, oven cloths).			
(See also Section D.)				

TERMS.

1st	2nd	3rd

5. *Cleaning Processes (special)*. Cleaning of:

- (a) Kitchen and scullery, pantry, store cupboards.
- (b) Coal and gas stoves.
- (c) Wringing and mangling machines; boiler; laundry baths.
- (d) Sink; construction and cleaning. Order of washing up; care of washing-up bowls, dish cloths and mops, scrubbing brushes; tea cloths, dusters, floor mops.
- (e) Disposal of household refuse.
- (f) Various kitchen utensils, e.g. pans, baking sheets, pastry boards, rolling-pins, &c.

SECTION C.—FOODS, COOKING, AND MEALS

1. *Buying:*

- (a) Recognition of foods in good condition.
- (b) Prices of common foods; buying when cheap and plentiful.
- (c) Selecting foods for different purposes, e.g. meat for stewing, fruit for preserving.
- (d) Keeping accounts of expenditure on food.

2. Cooking:

- (1) Reasons (a) for, (b) against cooking.
(2) Methods of cooking foods:

A. Boiling:

- (a) Process, recognition of boiling-point, convection currents.
- (b) Effects on food.
- (c) Application to:
 - (1) Vegetables (root, green, and pulse).
 - (2) Cereals (e.g. macaroni, rice, cornflour, and ground-rice moulds; custard powder).
 - (3) Meat.
 - (4) Bones (as in soups).
 - (5) Mixtures of above as in soups.
 - (6) Suet pudding mixtures.
 - (7) Sauces.

B. Steaming:

- (a) Process, apparatus, including substitutes for steamers.
- (b) Effects on foods of various kinds; comparison with boiling.
- (c) Application to:
 - (1) Vegetables (potatoes, &c.).
 - (2) Meat (e.g. for invalids) and eggs.
 - (3) Fish.
 - (4) Pudding mixtures (e.g. suet, &c.).

c. *Stewing:*

- (a) Process, recognition of "simmering", use of pans and stew jars.
- (b) Effects on foods of various kinds; comparison with:
 - (1) Boiling.
 - (2) Steaming.
- (c) Application to:
 - (1) Meat (white stews, brown stews).
 - (2) Fruit (fresh and dried).

D. Baking:

- (a) Process and apparatus; heating and testing of coal and gas ovens.

4. Food Values (simple). Planning Meals:

- In this section it is important to teach definitely:**

- Technique to be taught in section on Foods, Cooking, and Meals will include:

- ### SECTION D.—CLOTHING, HOUSE-LINEN, AND LAUNDRY-WORK

1. Clothing:

- (a) Use of clothing; nature of materials in common use for clothing and house-linen. (See 4 below.)
(b) Nature of dirt, &c. (See Section B.)

1st	2nd	3rd

TERMS.

2. *Purposes of Laundry-work:*

- (a) Cleanliness.
- (b) Renewal of appearance.

3. *Laundry Stores:*

Purchase and keeping and use of soda, soap, starch, blue, &c.

4. *Cleansing Agents and Processes* (see Section B):

- (1) Method of using water, grease removers, &c., to cleanse:
 - (a) Materials of cotton and linen, coarse, medium, and fine.
 - (b) Materials of woollen threads.
 - (c) Materials of silk threads (real and artificial).
 - (d) Materials of mixtures of threads, e.g. wool and cotton, embroideries, &c.
 - (e) Dyed fabrics of above threads.
- (2) Use of friction—method varied according to strength of material, size of article, &c.
- (3) Processes of steeping, washing, rinsing, and boiling; removal of simple stains.

5. *Colour-retaining Processes:*

- (a) Boiling
 - (b) Use of blue water
 - (c) Open-air drying
 - (d) Use of salt, vinegar. For materials dyed with "loose" dyes.
- } For undyed cottons and linens.

6. *Finishing Processes:*

- (a) Starching; action, making, use.
- (b) Drying; outdoor v. indoor drying; method of hanging out clothes; care of clothes lines and pegs, clothes horse, baskets, &c.
- (c) Damping, folding, and mangling.
- (d) Ironing; heating, cleaning, and testing of irons; preparation of ironing table equipment; method of ironing articles and garments of different materials and types; pressing woollens.

7. *Application of above to:*

- (1) Bed and bedroom linen.
- (2) Table-linen.
- (3) Curtains.
- (4) Kitchen towels, dusters, oven cloths.
- (5) Underlinen; stockings and socks.
- (6) Aprons, overalls, blouses, jumpers, and frocks (cotton); workmen's overalls.
- (7) Woollen garments of all kinds.
- (8) Silk (real and artificial) garments of all kinds.

8. *General Care of Clothing and House-linen:*

- (a) Bed-linen; care in using; airing; importance of cleanliness of person.
- (b) Table-linen; care in folding after meals when in use, and mangling to remove creases.
- (c) Non-washing clothing; brushing, sponging, cleaning, and pressing, &c., with special reference to girls' stuff dresses, gym tunics; protection of non-washing clothing by pinafores, overalls, &c.
- (d) Care and cleaning of shoes.

1st 2nd 3rd

Technique to be taught in Section D will include:

- (1) Study of economy of labour, fuel, and materials.
- (2) Hand friction; rubbing, kneading, squeezing.
- (3) Using dolly peg or possor.
- (4) Wringing, hand and machine.
- (5) Use of mangle.
- (6) Using iron:
 - (a) Plain ironing, single and double layers.
 - (b) Tucks, gathers, frills, &c.
- (7) Folding various garments.

1st	2nd	3rd
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1. Practice of dishes already learnt combined to form meals for:

- (a) Various times and occasions.
- (b) Various persons.
2. Practice of laundry processes already learnt combined as in family wash.
3. Combining and practising different branches of housecraft (cooking, laundry-work, and housewifery) as in daily routine of home:
 - A. Group work.
 - B. Individual work.
- (3 may include also reading and the carrying out of simple experiments relating to work done.)

Work tested by viva voce or written tests.

WORKING BOOKS FOR GIRLS TO USE IN CLASS

HELENA HEAD, *Housecraft*; WILLIAMSON & MULCASTER, *The New Housecraft for Girls*; *Practical Courses in Housecraft*, edited by E. JARDINE; M. D. SHIELL, *Cookery for Senior and Modern Schools*.

ABBOTT, *Science of Health and Home-Making*; HOOD, *Fighting Dirt*; W. HOSKYNs-ABRAHALL, *A Health Reader*; E. JARDINE, *Practical Science for Girls*; W. B. LITTLE, *Science in the Home*; SIMON & FITZGERALD, *The Smokeless City*; WHIPPLE, *Simple Experiments in Domestic Science*; M. H. MURRAY, *Domestic Handicrafts*; L. WETENHALL, *Laundry Work Notebook*; G. BRADSHAW, *The High School Cookery Book*; *Good Housekeeping Dictionary of Facts*; Dryad Books and Leaflets on Handicrafts; Atlas (showing trade routes); LAY, *Historical Atlas*; Dictionary.

Suggestions on Health Education for the Consideration of Teachers and Others. The Health of the School Child (H.M. Stationery Office); VANBUSKIRK & SMITH, *Science of Everyday Life*; ECKERSLEY, *Practical Science for Students of Domestic Economy*; CONN, *Bacteria, Yeasts, and Moulds in the Home*; V. H. MOTTRAM, *Food and the Family*; McKELLQP, *Food Values*; R. H. A. PLIMMER, *Food, Health. Vitamins*; Labour Saving in Small Houses (Garden Cities and Town Planning Association); EYLES, *The Woman in the Little House*; TRUBY KING, *Feeding and Care of Babies*; P. H. ARCH, *Domestic Work for Rural Schools*.

PHYSICAL TRAINING FOR GIRLS

BY

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PHYSICAL TRAINING FOR GIRLS

CHAPTER I

Introduction

The necessity for physical training in schools is now fully acknowledged, and the fact that all educational authorities insist upon its inclusion in school curricula is in itself significant of the value of the work. The need for the provision of a systematized training of a physical nature is recognized, not only by all organizations concerned with the educational training of individuals, but also by employers of labour, who realize that the health and physical welfare of their workers is the first essential to productive output of energy, and that systematic physical exercise is one of the basic requirements of health and strength.

The aims of physical training are clearly set out in the 1919 syllabus, and are epitomized very comprehensively in the following extract from *The Education of the Adolescent* (Hadow Report). "The purpose and object of physical education is not merely to improve the physical condition of the children and to secure the full development of their health and strength, but also to aid in the development of their mental powers and in the formation of character. Physical education, therefore, has a physical effect on the body and an educational effect on the mind. The physical result includes the influence on the general physique and nutrition of the body, the prevention or correction of faulty action or attitude of the body or any part of it, and the development of the neuro-muscular system. The educational result should be the acquisition of habits of discipline, obedience, ready response, and self-control." The two main aims of physical training are therefore physical and educational, and a further aim incorporated with these is to provide a valuable form of organized recreation for the children during school hours. Physical training, in whatever form, provides physical relaxation from sedentary occupations and mental relaxation from concentrated efforts of memory and reasoning. It also gives the children keen enjoyment and tends to promote a love of exercise and outdoor activities which should prove of service to them in later life.

The question as to how these aims may best be realized is one which demands some detailed consideration. The main factors governing the situation are:

1. The teacher.
2. The relationship of physical training with hygiene and the rest of the school curriculum.
3. The several branches of physical training possible in various types of school.
4. Its place on the time-table.
5. The accommodation available.

The Teacher

There may be many difficulties to overcome, many drawbacks as regards accommodation, equipment, and clothing to act as hindrances to advanced work, but the fact remains that it is very often the teacher labouring under the most adverse conditions who achieves the greatest success. This surely proves that the teacher's personality, her interest in the subject, and her powers of resource and ingenuity, are of even greater importance than the conditions under which she works. It must also be remembered that every teacher in charge of physical training has one predisposing asset in her favour, namely, the keen enjoyment taken by almost every normal child in any form of well-organized physical activity. Given this, it is an easy task for her to direct the children's love of vigorous movement along channels most beneficial to them.

The teacher who is determined to make physical training a vital and valuable part of education must first believe in its possibilities. To do this she must have a thorough and practical knowledge of the values and aims of every exercise or activity she teaches, and an intelligent understanding of the effects she hopes to produce by these. To comprehend fully the aims and desired effects of physical exercise, at least an elementary knowledge of anatomy and physiology is necessary. Lacking this basic understanding of physical aims and possibilities as regards effect, the most enthusiastic and brilliant teacher can only at the best achieve superficial results from her work.

Further, she must ensure the work being systematic, progressive, and educational by treating it with as much respect as any other school subject as regards its careful preparation and intelligent study of the syllabus. She must set both herself and her class a high standard, remembering that in physical training, perhaps more than in any other subject, it is the teacher who sets the pace. Her enthusiasm must be apparent to the children—her enjoyment of the lesson as keen. Upon her powers of inspiration the success of the class will depend, and on her attitude to the work the children will unerringly and inevitably base their own.

With physical training, as in any other subject, the teacher is apt to

become stale and in need of stimulation if her work is to maintain a high standard and also to become more progressive and enterprising. A college training in physical education gives her the groundings of the work and a foundation upon which to build. It sets her a standard and points out an ideal, but at the end of her first year's teaching experience she will probably realize that she is in need of further guidance and help. Many educational authorities provide help for their teachers by employing organizers of physical training to supervise the work in the schools and give help and advice wherever it is needed. Much may be learned in this way, and also from the classes held by organizers for teachers in elementary and central schools.

Now that the reorganization of schools is taking place, and senior and central schools are becoming general, teachers are being asked to specialize in physical training as in other subjects. Here again it is essential that the teacher should equip herself with further knowledge than that acquired at college. The Board's supplement provided for use in central schools is not generally touched upon in training colleges, and a teacher will therefore find that her work in central schools is hampered by lack of knowledge; she must restrict her activities to those laid down in the 1919 syllabus, and consequently cannot make the work as interesting, varied, or advanced as it might be. It is for these teachers in particular that the summer schools provide splendid facilities for additional training and the acquisition of more specialized knowledge. Here a month's course on the supplement may be taken, and teachers who accept posts in senior schools as physical training specialists with only a college training behind them, owe it both to themselves and the children to take advantage of some such opportunity.

Physical Training and Hygiene

Physical training embraces not only physical exercise in its various forms but also the inculcation of all hygienic principles and habits. If hygiene embodies the principles of health, physical training puts these into practice, and neither subject can possibly be treated in an isolated way, but each must be complementary to the other. In schools where both subjects are taken by the same teacher this linking up should be an easy and obvious matter. In the Board's *Handbook of Suggestions on Health Education*, the point is stressed that the principles of hygiene and physical training must be considered as inseparable. The teacher of hygiene who is also in charge of physical training will find unlimited opportunities of impressing this relationship between the two subjects upon her class. If, however, different teachers are responsible for these lessons, they should be capable of linking up their schemes of work in such a way that both concentrate on one common aim, that is, a *hygienic way of living*. With this principle as the acknowledged basis of both subjects, it is remarkable that in the majority of schools a very inadequate allowance of time is allotted to each. The Chief Medical Officer in his

last annual report writes: "Why is it we teach children arithmetic, geography, music, and drawing before we have taught them *how to live*? . . . We spend our time and money repairing the injuries of ignorance. But they should be *prevented* by the child learning how to live."

If the two subjects are to be taught successfully, both aiming at one goal, the children should not only be learning the values of fresh air, cleanliness, good posture, &c., but acquiring the habit of constantly practising what they have been taught. And therein lies the most searching test of the value of hygienic teaching in schools. The children may be word perfect on the theoretical side of the subject, but are they being encouraged and helped to practise what they know? Nor will hygienic principles carried out in these two lessons only, ensure the formation of life-long habits of health. Other subjects taught in the school must add their quota. Teachers of biology, elementary science, domestic subjects, hygiene and physical training, must have the same mental outlook towards their work if one subject is to be conclusively linked up with another in the child's mind and if severally and collectively their aims are to converge on the art of living well.

There are various ways, very obvious but surprisingly often overlooked, in which the teacher may definitely link up hygienic principles with the physical training lessons.

1. The teacher should herself set a never-failing example of cleanliness, tidiness, and suitability of dress. No surer way of encouraging girls to wear tunics and gymnastic shoes can be found than for the teacher to set the example herself in physical training periods.

2. In every lesson stress the importance of good posture. Teach exercises in such a way that every movement taken is an aid to postural training. Impress upon the children that this training must, to be effective, be remembered and practised throughout the whole day.

3. Insist on the playground being as clean and tidy as possible before beginning the lesson, and make children responsible for the picking up of any loose paper, orange peel, &c., which may have been thrown down.

4. Train children to be hardy by taking them out of doors whenever possible, and discourage the use of mufflers, hats, and top-coats during the lesson. Prove to them that cold weather is invigorating if strenuous exercise is taken: that this is the best way to *get warm*, and that added clothing is only useful as a means of *keeping warm* during periods of inactivity.

5. Give handkerchief drill at the beginning of every lesson. This is too often looked upon as a practice only suitable for little children, whereas it is one of the greatest aids to good breathing and the forming of a hygienic habit, and children, no matter what their age, will soon learn to look upon it as a perfectly normal incident in the lesson. It has two very important values: (a) The children will acquire the habit of always carrying a handkerchief on their persons, and can be made to understand that its possession is simply one of the common decencies of life. (b) The

use of the handkerchief ensures clear nasal passages, and, when followed by vigorous exercise, is much more efficacious as regards deep breathing than any amount of formal breathing exercises.

6. A vigilant watch by the teacher should be kept on the class as a whole, and she should be quick to detect any signs of physical distress such as undue breathlessness, pallor, fatigue, &c.

The School Medical Service

The teacher who undertakes to specialize in physical training should remember that she is at the same time making herself largely responsible for the health side of the children's education, whether or not she is also in charge of hygiene. All teachers should feel that they have a definite link with the school medical service, but particularly so the physical training teacher. The subject itself, aiming as it does at the promotion of health and general well-being among the children, is no mean ally to the school doctors and nurses. Her knowledge of the principles of physical training and hygiene should be of value as regards the detection of physical defects, and in this way she can prove directly helpful to the S.M.O. Medical inspection also provides an invaluable opportunity for the teacher to receive expert advice on the treatment of individuals. Many children are debarred from taking part in physical training lessons on medical advice, but if the reasons for such exclusion are closely inquired into, it is often found that only vigorous activity or certain exercises have been banned as harmful. In point of fact, the less strenuous forms of physical training, such as marching, breathing, and balance exercises, may be directly beneficial to the child's condition—as in mild cases of heart trouble or anæmia. The teacher might very profitably elicit from the doctor the nature of the child's disability, and receive instructions as to any means by which she may ameliorate or improve such a condition, and what types of exercises may safely be performed in such cases.

The problem of the unfit child is one which is too often completely shelved as regards physical training. Take, for example, the child who is forbidden all physical work by the doctor. She is frequently left in the classroom to read or study, whereas she might be in the playground benefiting from the fresh air and sunshine, change of environment, and mental relaxation from bookwork. Such a child, if allowed to perform any small duties which do not involve physical exertion, but the fulfilling of which gives her a share in the lesson and a feeling of membership with the class, may be made to feel capable of service and help.

Branches of Physical Training

When physical training does eventually come into its own as an indispensable part of education—not only in theory, but in fact—it is to be hoped that its various branches will receive adequate recognition. In the majority of schools in the country, physical training comprises drill and games only. The ideal state of affairs is when drill, games, dancing,

swimming, and athletic sports are all included in the subject known as physical training. Each type of training has some intrinsic value of its own, and no one branch is sufficient in itself to realize to the fullest extent the aims of physical education.

Drill lessons, as planned in the 1919 syllabus and the supplement, are absolutely essential as regards training in posture and carriage, correction of malpositions, development of co-ordination and control, concentration and mental alertness. Organized games provide more particularly the recreative side of physical training, and at the same time give training in agility, physical dexterity, and skill, quick thought and initiative, and are also instrumental in the formation of character. Dancing, with its training in rhythmic movement, tends to soften rough, clumsy action, to give an added grace and freedom to posture and carriage, and is an invaluable aid in promoting mobility of joints and flexibility of muscles. Though dancing should never take the primary place in physical training, it is so excellent a complement to it that it should, whenever circumstances permit, be included in every school time-table. The value of swimming is, of course, undisputed both in the magnificent physical exercise it entails, and because the ability to swim may so often prove the means of preserving one's own life or saving another's. A yearly sports day is excellent if looked upon as a test of the physical training undergone throughout the year, and if it is organized in such a way that the greatest number of children have a share in the various events.

Though many schools may not be able to practise all branches of physical training, every school, however limited its accommodation, can concentrate on drill and games as suggested in the Board's syllabus.

Its Place in the Time-table

The first question that presents itself is that of the time allotted to physical work, and this differs widely in different types of school. In the junior schools, a short twenty-minutes lesson four days, and a thirty-minutes games lesson one day per week is a satisfactory arrangement. In senior schools, particularly where specialization is carried out, daily lessons seem an impossibility. A fairly frequent arrangement is for each class to have three thirty- or forty-minutes periods per week, two of which are devoted to drill and one to games. Four weekly lessons would be much better, as in this way an added period would be available for dancing. In the summer term the fourth lesson might preferably be used as a second games period if swimming were impossible. Three periods of physical training each week is certainly the minimum that any school should permit, and two of these should be devoted to syllabus work if it is to be in any marked degree effective.

The curriculum in senior and central schools is now so wide, so many subjects must come up to a high standard of efficiency, that the tendency is for a child to receive less and less physical training as she grows older—in fact, during the very period of growth, when she probably needs it most.

If educational authorities would only be convinced that physical education, rightly presented, should *add* to the mental ability of the children there would be fewer schools where inadequate time is allotted to the subject. The fact that many of the schools producing the best results from the academic standpoint are also those which devote a generous amount of time to physical work, should surely offer conclusive proof of this.

Accommodation

To obtain the best results from physical education it should be taken whenever possible out of doors. One of the important aims of the lesson is to improve the breathing capacity of the children, and therefore work done in the fresh air will prove immensely beneficial through the increase of oxygen carried to the body tissues and the resultant effects on general nutrition. Thus the primary accommodation should be a good playground or yard, if possible supplemented by a playing field in which organized games may be taken. Unfortunately weather conditions often render open-air work impossible, not only on isolated days but sometimes for periods of weeks at a time. It is obvious, therefore, that if physical training is to be unbroken in continuity, some secondary accommodation must be available. Very few elementary or central schools are provided with a gymnasium, nor is this at present either necessary or advisable, owing to the fact that fully trained gymnasts are not employed on the staffs of such schools. But that every school should have a physical training room is surely as essential as that it should possess rooms for handwork, needlework, or cookery. Even though such provision is as yet not generally made for physical training there is every indication that it will come. Until then the teacher is more directly concerned with the problem of how to make the best use of existing conditions. Most of the larger and more modern schools possess a hall in which physical training can be taken when outdoor conditions are impossible, but even this may have its drawbacks. A polished floor, wall decorations, or badly placed lights will prove an effective restriction to active and enterprising work. Where a hall or large room is available and recognized as the regular indoor accommodation for physical training, the following points might be noted.

(a) A swab, and container filled with disinfectant fluid, should be kept on the premises and the floor swabbed before every lesson. This is an excellent hygienic precaution, and the children themselves should be made responsible for its use.

(b) A chest or cupboard is advisable for storing minor equipment.

(c) To make the indoor lesson as nearly as possible similar in its physical value to open-air work, it is essential that all windows be opened to their fullest extent throughout the physical training period.

Where no hall is available, possible alternatives in order of merit are:

A covered playground.—Many school yards are provided with this kind of accommodation, though its possibilities as regards physical training

are often overlooked. If, however, the shed is of a reasonable size and its floor kept clean, it should prove a valuable substitute for the yard.

The corridor.—Some schools possess very fine corridors which might well be utilized for drill lessons on wet days. The obvious disadvantage is that of disturbing classes at work, but though the lesson would necessarily have to be a very controlled one it would be much better than no lesson at all, and the children would benefit from the change from the classroom to the fresher air of the corridor.

The classroom.—Many teachers feel that the limitations of physical work in the classroom are necessarily so great that to attempt it is a waste of time. This, however, is a mistake, and the question of classroom drill presents possibilities which will be dealt with in detail later (see p. 94). The teacher who believes in the beneficial effects of physical training must realize that without continuity the work will suffer, however efficiently it may be carried on in the main. An interrupted training in physical work is just as detrimental to the child's bodily welfare as any lapses in other forms of training would be to its educational advancement. It is therefore of paramount importance that on the frequent occasions when open-air work is out of the question, the training shall be carried on, no matter how limited the accommodation.

The Effects of Physical Training

The exercises in the syllabus, if accurately and systematically performed, must have a strong and marked effect on the physique of a growing child—on nutrition, on physical development, on posture and carriage.

The type of movement influencing most directly the general nutrition of the body is the "massive" movement, by which is meant those exercises or activities which involve the entire body, as in running, jumping, dancing, and games. Such physical exertion results in increased circulation of the blood, increased supply of oxygen to the tissues, increased elimination of waste products, and increased efficiency of the digestive system. Other conditions being favourable—rest, sleep, good food, and fresh air—it is largely through these massive movements that the growing body is developed, its muscular and bony structure built up. It is therefore of immense importance that "general activity" of various types should be given an adequate place in physical training lessons. A good test by which to judge the effect in general nutrition is that of breathlessness. If at no time during the lesson have the children been *normally* out of breath, this is a proof that the work has never been energetic enough to cause involuntary deep breathing and therefore no marked effect has been produced on the respiratory and circulatory systems.

Physical development, that is the harmonious and well-balanced development of the body and brain as a whole, is also aided by these massive movements through their effect on general nutrition. The developmental effect may be considered also in the light of a physical

education, that is, the education of muscles by development of co-ordination and control through co-operation with the brain and nervous system. Big, simple movements are easily performed by little children because no great co-ordination is necessary. A little child can jump over a low object with comparative ease, but is incapable of performing the same jump with an accurate and well-balanced landing and a controlled finish. In a few years' time this accuracy will be achieved, because by gradual training and constant practice, co-ordination of the various muscle groups involved has been acquired. To demand greater accuracy and precision of movement than the child's age and stage of development warrants is not only useless but harmful, as the output of energy necessary for such an attempt will result in mental and physical fatigue. The teacher's aim should be to provide physical activity for the children which will gradually, effectively, and without undue strain develop their muscular strength, powers of co-ordination, and control of the body by the brain. This aim can only be realized by the use of a systematic and progressive scheme composed of movements of graded difficulty and suitable for the various stages of physical development.

The effect of physical training on posture and carriage should be one of the main tests of its efficacy. This effect may be considered from two angles—training in good posture and the correction of faulty posture. In the case of a child who has contracted no bad postural habits, training in good posture is a relatively simple matter. Generally speaking, however, from the day the child enters the infant school the need for physical exercise of a corrective nature arises. The cramping life of the classroom, following an existence which has previously been spent in untrammelled natural activity or rest, frequently results in stiffening of joints and loss of flexibility in muscles. It is necessary for joints and muscles to be constantly and vigorously exercised if their full range of movement is to be retained, and therefore one of the chief principles of physical training is to maintain the mobility of early childhood by the provision of daily periods of organized activity, thus counteracting the undesirable effects of an unnaturally sedentary life during the period of rapid growth.

The term "corrective effect" is defined in the syllabus as denoting "the remedy or adjustment of any obviously defective or incorrect attitude or action of the body, or any of its parts", and it will be seen that every table includes movements of a definitely corrective type. All head and trunk exercises, arm stretchings and flingings, chest expansions, breathing exercises, and balance movements come under this category, as also does marching and the position of "attention". Faulty posture, or a bad physical habit such as mouth-breathing, may simply be the result of lack of effort and mental lethargy on the part of a child, but such habits if neglected may lead to definite physical defects. Training in good posture is of the greatest importance as regards the proper functioning of the various organs of the body. The body is intended to be carried in an erect position whether standing, walking, or sitting, and its structure is such

that if the correct attitude is maintained, there is no strain on any muscle group or cramping of internal organs. It is for this reason that it is essential to stress good posture in the classroom as much as in the playground. Corrective exercises practised in the drill lessons strengthen and develop these muscles, particularly of head and shoulder, whose work it is to ensure a correct attitude while sitting. Poking head and slouching shoulders result in badly developed chests and inadequate lung capacity. An incorrect sitting position may also have very bad effects on the digestive system owing to the unnatural cramping of these organs. Poor classroom conditions may be the cause of much bad posture, as, for example, inadequate lighting, unsuitable desks, or an overheated, badly ventilated atmosphere, but even under ideal conditions much sitting results in fatigue and therefore change of occupation and the corrective effect of a drill lesson is absolutely necessary, and it is for this reason that a daily physical training period is advocated.

It is impossible—both from the mental and physical aspect of education—to overestimate the importance of training in good posture and the necessity for corrective work, and this aim of physical training should never for a moment be forgotten by the teacher.

CHAPTER II

The Scheme of Work

The 1919 syllabus supplies a scheme of physical training specially planned for children from the ages of seven to fourteen years, ten tables being allotted to each school year. A further work, the *Supplement for Older Girls*, was published in 1927, and primarily intended for use in central schools. This is a progression on the 1919 syllabus and outlines a more advanced scheme for girls over fourteen years of age. In senior schools where physical training is given its adequate allowance of time, it is by no means uncommon to find that the syllabus work can be proficiently covered a year before leaving age, and in this case, provided the teacher in charge is qualified to teach from the supplement, the top class girls may advantageously be given the advanced scheme.

A conscientious and intelligent following of the syllabus ensures:

(a) That the special needs of each class are provided for, the lessons being scientifically graded to meet the requirements of the various ages.

(b) That the various parts of the body are exercised equally, thus effecting harmonious development of the whole.

(c) That there is progression from lesson to lesson, and a gradual building up from the foundations laid in the infant and junior schools to the more advanced work of the senior and central school.

The syllabus is designed for use by non-specialist teachers, and for this reason the movements are all of a simple and straightforward type. A criticism sometimes levelled upon the syllabus is that the work is dull, and for this reason there is a tendency to use it only as a reference book. If syllabus lessons are uninteresting, the fault emphatically does not lie with the scheme of work but with the method of presentation. The teacher's aim should be, not to attempt an improvement of the syllabus, but to set herself to interpret it aright and in such a manner that the children derive the utmost benefit and enjoyment from the lesson.

The Syllabus Lesson in Detail

It will be seen that every table consists of seven groups of exercises and activities, and that the order of grouping is consistent throughout the book. The best way in which to understand and remember the sequence of movements is to think of the lesson in relation to the child and its needs.

Group I, Introductory.—First, vigorous activity is necessary, partly as a warming measure, partly as a general mental and physical stimulant. In this way the child's mind and body is attuned to the work that will follow and the right spirit of effort and enjoyment captured.

It is a good plan to include here both forms of running; rhythmic running, in which a definite rhythm is set and where a light springy step should be encouraged with easy natural carriage and correct ankle work, and the more vigorous forms of running introduced through catching games, racing, and sprinting practices. Following upon this informal introduction, the next step is to prepare the class for the more formal work of the table. Class formation is taken, handkerchief drill and breathing. Breathing exercises should not immediately follow very strenuous activity, and a short spell of marching after vigorous movement is good, both as regards postural training and also because this allows time for breathing to become easy and normal. Handkerchief drill should, of course, always precede breathing exercises to ensure clear nasal passages, and nose breathing, both during inspiration and expiration, should be encouraged. Breathing is best taken freely to the child's own time because of the varying lung capacity of individuals. The fundamental principle of good breathing is an easy, erect, and natural posture from which free chest movement is possible. Deep breathing is beneficial as regards its corrective effect in that it aids chest expansion, increases the mobility of chest walls, develops lung capacity, and corrects the habit of mouth breathing.

One or more introductory exercise is next taken and this generally consists of a rhythmic jump. Much of the value of rhythmic running is also attached to this type of movement, which gives excellent training in agility, foot work, rhythm, and control.

These preparatory activities comprise the first group of movements, known as the introductory.

Group II, Head and Trunk Exercises.—Having completed these

more or less informal preliminaries, obviously the next need is that of postural training and correction, beginning with movements for the neck and back muscles. This group of exercises is perhaps one of the most valuable from the corrective point of view, their effect being to promote mobility of spine and chest and strengthen those muscles responsible for correct posture.

Group III, Arm and Shoulder Exercises.—Exercises for arms and shoulder muscles naturally come next. They also are corrective in their effect on narrow chests, rounded backs, and stiff shoulder joints. So strongly can this group of exercises affect the carriage of the chest, respiration, and circulation, that the greatest care is necessary to ensure really vigorous and accurate performance. Arm exercises are frequently combined with other movements and it is therefore doubly important that they should be correctly taught.

Group IV, Leg and Balance Exercises.—Muscles of the leg and abdomen are now exercised, and general poise and posture is practised and tested in balance movements. To perform a balance exercise with perfect control and maintenance of good posture throughout, demands highly trained powers of co-ordination. For this reason balance exercises are both corrective and educational as regards posture, and developmental as regards co-ordination and control of the body by the brain.

Group V, Lateral Trunk Exercises.—All limbs having now been exercised, as well as muscles of the neck and back, attention is next paid to those muscles of the trunk which are employed in flexions or rotations of the spine.

Trunk bending sideways increases spinal mobility, and guards against lateral curvature by developing equally the muscles on either side of the spine. Lung capacity is also increased by the alternate contraction and expansion of the chest walls, and for this reason the flexion should occur mainly in the dorsal region of the spine. Trunk turning or twisting, besides effecting mobility of chest and spine and development of those muscles concerned, has also a strong effect on the digestive organs and on peristaltic action. In both rotations and flexions the movements are made more effective by a preparatory stretching upward of the spine and immobility of the hips.

Group V concludes the formal exercises of the table and their success as regards fulfilment of aims depends on correct teaching, accurate performance, and utmost physical and mental effort. The formal work certainly constitutes the least interesting part of the lesson from a child's point of view, but the teacher who brings imagination to bear in the presentation of these exercises can make every one of them enjoyable and stimulating. Where a concrete aim is supplied, as in trunk bending downward to touch the floor, the children's interest and effort is readily given. An exercise such as trunk bending forward tests teaching powers more severely. Here the aim is more indefinite, but provided the teacher knows exactly how the movement should be taken, and is capable, if

necessary, of demonstrating it correctly, she can inspire the class with the desire to achieve a standard of accuracy. Lack of interest results in lack of effort and purposeful endeavour, and without these no zest or enjoyment is possible. Therefore unless the teacher gains the children's interest, much of the value of the exercises will be lost.

Breaks.—The introduction of breaks into the drill lesson does much towards making the work physically invigorating and mentally stimulating. A break should be exactly what the name implies, that is, a break in the formal work, providing short interludes of freedom and relaxation in the nature of games or informal activities. Breaks should be quickly organized, and their aim should be to supply as much activity for all as is possible in a short space of time. The chief reasons for their inclusion in the table are: (1) For relaxation and enjoyment; (2) As a warming measure during outdoor work when it is inadvisable to keep children stationary for long; (3) To encourage alertness and quick response, keeping children constantly on the alert for unexpected directions; (4) To foster the team spirit and healthy inter-team competition, so adding zest to the lesson; (5) To train the children in taking quick changes of formation.

There are various types of activities suitable for breaks, the most popular being either an active group game, such as Chinese Wall, or a team race, such as Thread the Needle or Through the City Gates. Relay races are *not* suitable for breaks because only one child in each team is active at a time, the others having to wait their turn. Quickness tests such as Out of my Sight, Touch Wood, Stone, &c., and back into place, are also useful because good training in quick response and the instant interpretation of unexpected directions into action.

Breaks, like all activities, must be purposeful if they are to be effective. The simplest run to the wall and back into places can be made thrilling if presented in the light of a competition and a high standard of speed and nimble movement demanded.

Group VI, Agility.—This group is one of the most important in the table. After the needs of the body have been dealt with in detail by the performance of localized exercises, the agility group provides massive movements in which all limbs and large muscle groups are involved, and where co-ordination, control, and poise are also necessary. The previous work of the table has thus led up to the culminating muscular and mental effort that is demanded in a jump. The three main types of jump suggested in the syllabus and supplement as suitable for inclusion under this group are:

1. Free forms of jumping where no controlled landing is required. Here a free, vigorous running start should be taken, an active take off, utmost effort in the spring, and flexibility of knees and ankles, so ensuring a light landing.

Examples: Running high jump to head object; running high jump over a rope; running broad jump over marked space; hop, step, and a jump from a running start.

2. Jumps where a controlled landing is part of the exercise. These may be taken from a running or a standing start. If the former, all the points aimed at in the free jump should be practised plus a correct landing and controlled finish. This effort at a controlled landing adds enormously to the value of the jump. Whereas the free form of jump is mainly an affair of the muscles, the jump with a controlled landing is definitely educational in that the body is directly restrained and disciplined by the will, and real skill as regards co-ordination and timing of movement is necessary.

Examples: Ladder jump; high jump over a rope, &c.

3. Supported jumps. These are jumps where members of the class either take the place of apparatus as in leap frog, or where one or more supporters help the children performing the jump without themselves participating in it, e.g. stride jumping on and off forms with support (one supporter), upward jump in threes and quick squat through living support (two supporters). Jumps of this type are a progression on the simpler kinds of agility exercise, being somewhat similar to apparatus vaults.

It is in this group of the table that most of the sectional work is carried out (see *The Team System*, p. 96), and where teams form up for group practices under leaders in this way, other activities besides jumps may be allotted to them, as, for example, balance exercises on forms and ball practices.

Group VII, The Game.—To conclude with a game ensures ending the lesson on the right note of keen interest, high spirits, and happy communal effort. The types of game most suitable here are relay races of various kinds and active group games which can be quickly organized and played in a limited time.

CHAPTER III

General Teaching Methods

One of the tests of good training is the way in which the children come from the classroom into yard or hall. From the moment they leave their desks they should feel that the lesson has begun, and the instant they arrive in playground, field, or hall, the teacher or leaders should immediately organize activity for the whole class or individual teams. From then onwards the movement of the lesson should be brisk and purposeful; each group in the table should link up smoothly with the next and no lengthy pauses should break the continuity of the work.

Upon the teacher's manner the success of the lesson and the children's enjoyment largely depend. Her attitude should be that of a cheerful, patient, and inspiring leader; one quick to encourage effort, recognize

merit, and capable of inspiring the dullest child with the constant desire to achieve. On her manner depends also the discipline of the class, the sure control of which should never lapse. Nor will it do so if the teacher is at all times firm and decided, showing confidence in herself and faith in the children's willingness to respond.

The question of preparation is also one which may vitally affect the value of the work and the movement of the lesson. If this is to go with a swing it must be well thought out and carefully prepared. Considerable time will be saved if all playground markings (where these are not permanent) are made preparatory to the lesson, if possible, by the children themselves, who should also be responsible for bringing out whatever apparatus may be needed.

Commanding.—The theory of commanding is fully dealt with in the syllabus. It is, however, necessary to stress the importance of a good command, that is, one accurately phrased and correctly given. Indefinite, badly expressed directions, an insufficient pause or a feeble word of command, will result in slovenly, effortless work from the class. A whistle, if used with discretion, is an excellent means of saving the voice, particularly in the playground when used as a signal to stop or to change from one activity to another. A vocal command is, generally speaking, very much more inspiring and expresses the teacher's personality in a way the whistle obviously cannot do, and therefore is the best medium for obtaining the desired response.

Class Formations.—The tedious method of opening files by numbers has now been superseded by team formation into which the children move smartly when the teacher or leaders give the order. Throughout the lesson every child must have room to perform all movements without interfering with her neighbour; good spacing is therefore the first essential. Teams should never consist of more than twelve members, eight in each being the most satisfactory number, and an even number of teams is desirable as many exercises and breaks are performed with partners. Four, or in large classes six, teams are a good arrangement. Changes of formation provide useful training, so should occur in every lesson, and the children should be encouraged to perform these in the quickest and most methodical way. Such training prevents loss of time, makes the children move as thinking individuals, and lessens the risk of accidents through clumsy unreasoning haste. When preparing a table, it is wise to think out the best formation for each activity. Some exercises are best taken in rank, some in file formation, while for others a loose group or ring may be preferred. Formations for sectional activities should also be planned beforehand and advice given to leaders in this connexion. Each group should have plenty of space for its activity, if possible at some distance from other groups, and leaders should be encouraged to arrange their teams in such a formation that not only is each child well placed for the movement to be performed, but that the best view of this may be obtained by those awaiting their turns.

Presentation of Exercises

To ensure that the lesson is of the greatest general value the teacher should try to gauge the average ability of the class and concentrate on adapting the work to its level. Every encouragement should be given to the backward ones and a constant effort maintained to help them to reach the average standard, but in no case should the work be held back on their account. On the other hand, those children showing marked ability may be urged on to the attainment of the highest standard within their capacity, and their example should prove stimulating and inspiring to the class as a whole. Next, the teacher should know quite definitely what particular value belongs to each exercise and the exact manner in which it must be performed. Any exercise which results in bad posture from the class as a whole proves that the movement has been incorrectly executed, and that teaching has been superficial and lacking in understanding. The first essential to build on is that of posture. No exercise can be fully effective if taken from an incorrect starting position; therefore good posture should be stressed as the basis of every exercise and its maintenance during the execution of movements determinedly encouraged. The vigorous performance of certain exercises tends to detract from correct posture, as in arm swinging or stretching upward, where a poking head and hollow back often result from the effort to stretch high. The most careful insistence on a good starting position and the immobility of the body throughout the arm movement is therefore essential if general postural training is not to be sacrificed for a more localized effect.

Children should be made to understand very clearly what is meant by good posture, and be given simple directions which will help them to acquire it. The position of attention, that is the preparatory effort at a good position before the performance of any exercise, should be that of an easy, erect, and alert attitude in which there must be no rigidity or undue tenseness. The best directions to give the class, when training in this position is necessary, are: "Grow tall, make the back of your neck as long as possible, shoulders down, press your knees back." The pressing back of the knees will carry the weight forward and flatten the abdomen. The direction "shoulders back", though one frequently used, is most detrimental to good posture, the result being a rigidity of the chest and a hollowing of the back.

The next aim should be to obtain the maximum movement in each exercise. The strongest effect of an exercise is in most cases produced by active muscle work rather than static. For instance, in trunk bending downward to grasp ankles, the desired effects are gained by the movement of bending down and stretching up rather than by holding the position. The overdoing of static work in difficult exercises such as trunk bending forward or knee upward bending, causes muscular fatigue and boredom, and results in faulty performance and bad posture. An exercise, to be effective, must be repeated several times, partly to ensure adequate work of the muscles involved, partly to perfect the movement by practice.



INTRODUCTORY ACTIVITY: RUNNING HIGH JUMP TO HEAD ROPE,
AND BOUNDING OVER MARKED SPACE



HANDS ON THIGHS, HEADS PRESSING BACKWARD

When teaching a new exercise, demonstration may be necessary, also a certain amount of explanation and stressing of essential points. Such demonstration should, however, be of an informal nature, and wherever possible the teacher should let the children practise the movement with her. In this way she is stressing her points, giving an accurate demonstration which the children will try to emulate and keeping the class interested and occupied. In some cases this method of demonstration is not possible as the children cannot watch the teacher and themselves perform the movement, but in all cases demonstrations should be given without loss of time, and often the movement can be built up by the children from the teacher's explicit directions alone. In no case should exercises previously learnt be demonstrated unless, after performance by the class, the teacher finds that the movement has not been grasped. A brief demonstration then by herself or a picked child may be the best method of correction.

Except in the case of purposeful demonstration, the performing of exercises with the class is not as a rule advisable, as this tends to produce mechanical copying of the teacher and detracts from training in initiative and co-ordination. On the other hand, the occasional picking up of the movement by the teacher during its performance may prove inspiring and have a stimulating effect on the class.

Accurate teaching and the insistence on a good starting position greatly minimize the need for correction, but when the need occurs, correction should be mainly general and carried out whenever possible during the performance of exercises. In this way time is saved and the majority of the class is not kept idle while the faults of a few individuals are discussed. When inaccuracy of execution is general, the teacher may advantageously let the class stand at ease while she explains briefly where the weakness lies and how to correct it. Here a demonstration of the wrong and the right way may prove helpful, especially if the class is asked to decide which is the right method and the teacher elicits from the children the reasons for their decision. This serves to impress on their minds the point she wishes to rectify. The best test of the adequacy of definite correction lies in the improvement shown by the class on the repetition of the movement. Inaccuracy of performance after constant repetition means wasted effort on the part of the class and points to inefficient teaching.

Individual correction is, very occasionally, desirable, and when employed should consist of clear and concise directions easily grasped by the child. Manual correction should only be used as a last resort, for it is much better training in co-ordination if the child can be directed how to correct the faulty movement by her own efforts, rather than stand passive while the teacher performs the necessary adjustment of her position.

In most classes the position of the head and shoulders needs constant correction, and for this reason a head-pressing-backward exercise is a

movement which should be included in every table and may be used whenever the teacher detects the need for it. The supplement tables end in every instance with a corrective exercise, thus ensuring a final effort at good posture and correction of faulty carriage.

Corrections and teaching generally, should be constructive. It is obvious that a direction such as "carry your weight forward" will receive better response than "don't lean back", and the art of constructive criticism is one that the teacher should set herself to acquire. "Don't do this—don't do that!" is a depressing form of correction and quite devoid of inspiration or encouragement. Similarly, to start the class away for a race with the remark "See who is last!" is to surround the laggard with an interest quite unmerited, or the weakling with a prominence that is scarcely kind! Conversely, "Try to do it this way—See who is first" awakens the child's natural interest in the mastering of a difficulty or fosters a laudable desire to "go in and win".

Progression.—The following of the scheme provided by the Board's syllabus ensures general progression of work, but it is essential that the teacher should have a clear understanding of the various ways in which progression is aimed at, and apply these to all branches of physical activities. Progression of any activity is brought about by increasing its difficulty, thereby demanding greater mental and physical effort and resulting in proportionately stronger effects. Difficulty of movements may be increased as follows:

1. By the demand for greater effort, e.g. increasing the height of a jump.
2. By the necessity for greater powers of co-ordination, as in combinations of movements, e.g. trunk forward bend, to trunk forward bend double arm punching; or again by increasing the difficulty of maintaining balance, e.g. knee upward bend, to knee upward bend and slow arm stretching upward.
3. By aiming at greater accuracy and precision of execution.

Progression must be gradual and systematic, and every advance made should be built on the sound foundation of accuracy in work previously learned. To aim at essentials first is therefore the most vital point; when these are grasped details of style and finish, in themselves a progression, may be added. For instance, in teaching a running jump the first essential to stress is the free vigorous run and the gathering of effort in the jump. Next should come the attempt at good style in the jump itself and the light supple landing. Finally an accurate controlled landing and finish should be aimed at. The arrangement of the tables is such that this gradual increasing of difficulty is ensured, but it will be seen that in no table is every exercise entirely new. Even so the teaching of a whole new table should not be attempted in one lesson, but exercises drafted in by degrees. Similarly, where several new exercises are to be taught, the choice of breaks and activities should comprise only those already familiar

to the class. Just in the same way that tables are planned on a progressive system, so should all breaks, games, and group activities have progression as an underlying principle.

Unless the children feel that by their various practices they are steadily acquiring greater proficiency and increasing their capacity for physical skill, their interest in the work will inevitably flag. One of the greatest incentives to whole-hearted endeavour is the hope of ultimate achievement, but this aim cannot be realized unless the way to it is paved by preparatory stages of progressive practice.

Adaptation of the Tables

Under certain conditions the teacher must necessarily exercise her own discretion as to the advisability of adapting or modifying the table, as for instance in weather extremes of heat or cold, when the yard is the only available accommodation. In the former case the main points where modification is advisable is in the choice of breaks and games. Some activities are only suitable for warm weather because they involve much standing still and yet may be valuable as training, and from this type the choice for a hot day should be made.

Very cold weather has a much more serious effect on physical training because in such circumstances the lesson is frequently omitted. This need never be the case, even when no hall is available, as the difficulty may be met in one of two ways.

1. So plan the lesson that the work throughout is of a vigorous and warming nature; take only those exercises and activities already known to the class; increase the number of active breaks and choose a final game which provides continuous activity for all.

2. Classroom drill, preceded whenever possible by five minutes' playground work consisting of running and big active movements, so ensuring deep breathing in the fresh air and increasing circulation. The formal exercises may then be taken in the classroom.

The following is an example of how a syllabus lesson (Table 61) may be adapted for use on a cold day.

Introductory.—(a) All team colours given out in classroom. (b) Handkerchief drill. Children begin running on reaching playground. Change at given signals to (1) spring step, (2) running with knees high, (3) war dance, (4) stand.

- (c) At signal each leader tags as many members of other teams as possible. At second signal each team tries to encircle a leader other than their own.

- (d) Run into open team formation. Upward jump with knee lifting.

Head and Trunk.—(a) Head bending forward and upward stretching.

- (b) Astride, quick trunk bending downward to grasp ankles; six pulls and upward stretch. Repeat three times.

Break.—*Round the British Isles.* Each team runs into four chalk-marked rings and at signal races round yard outside the other three circles and back into its own.

Arm.—Upward bend, arm stretching upward and sideways counting twelve. Repeat.

Leg and Balance.—Five skip jumps and on sixth count jump to knees outward bend, arms sideways. Arm flinging six times. Repeat.

Break.—*Paddy Out.* Two lines facing and partners grasping hands. One odd one as Paddy. At signal all race to wall behind each line and back to a partner, Paddy trying to secure one and making someone else "Paddy Out".

Lateral Trunk.—Astride, quick trunk turning with alternate arm punching forward.

Agility.—Running high jump in fours over rope—continuous.

Group Practices.—(a) Practice in standing broad jump, all working.

(b) Practice in hop, step and jump, all working.

(c and d) Stick jumping relay. (*Games Worth Playing.*)

Teams change, *a* and *b* taking *c* and *d*'s activity and *vice versa*.

Corrective.—Teams fall in. Head pressing backward and upward stretching. Class dismiss, or march smartly into school.

It is impossible to suppose that such a lesson, rightly taken, would fail to promote warmth among the children, even on a very cold day.

Classroom Drill

This necessarily falls very far short of a physical training lesson taken in yard or hall both as regards values and enjoyment. It is, nevertheless, much better than nothing, and the ingenious teacher will find many ways by which to make it both effective and interesting. The best plan is to have a permanent classroom formation so that at a word the children take up their positions in readiness for the lesson. Where space is very limited the class may be numbered in twos, so that when impossible for all to perform a movement simultaneously, ones and twos may work alternately. In a classroom furnished with dual desks and tip-up seats it is possible for one child to stand at her desk with her partner in the aisle. An example of classroom lesson (Table 66 adapted) is given below.

Introductory.—All windows opened wide. Formation as above, ones in desks, twos in aisles.

(a) Handkerchief drill.

(b) All sing the tune of the *Keel Row*, clapping the rhythm. Ones repeat singing and clapping, twos skip jump, high and low. Ones and twos change places and repeat.

Head and Trunk.—(a) Hands on thighs, head pressing backward.

(b) Ones long sitting on desk seats, twos stride stand. All, trunk bending downward to touch toes.

Arm.—Upward bend, alternate arm stretching upward and sideways.

Break.—Ones through partner's legs and stand in front of her in aisle. Twos on to desk seats. Repeat, back to places, twos going through ones' legs.

Balance.—All stand on desk seats, a one and two on each seat and back to back. Hips firm, knee raising.

Lateral Trunk.—Ones at desks, twos in aisles. Under bend, trunk bending sideways.

Agility.—Stick held across opening of each aisle by a number one. Number twos standing high jump over the stick, in turn. Ones and twos change places and repeat, twos holding the sticks. Effort in the jump and correct landing can be stressed.

Game.—Twos in aisles. Arch bean bag passing, and about turn. Tunnel passing through legs, about turn and finish at attention. Ones, in pairs, stand on desk seats. First one faces second one, third faces fourth, &c., in each line of desks. Bean bag passing between couples. See which couple can complete the greatest number of passes without a drop before first line of twos complete arch and tunnel passing. Ones and twos change places and repeat.

Classroom drill also provides an opportunity of detailed explanation and coaching, impossible in the playground.

The adaptation of work to suit cramped conditions such as a very small yard or a shed is comparatively simple, and consists chiefly of careful organization as regards formations, and thoughtful choice of games and activities.

Apparatus

In senior or central schools where teachers are qualified to use the supplement, some simple gymnastic apparatus is necessary if the full range of activities recommended is to be employed, and the following choice is suggested:

- 4 twelve-foot swedish balancing forms
- 2 pairs jumping stands and weighted ropes.
- 2 mats.

No apparatus beyond jumping stands is advocated for the working of the 1919 syllabus, but in all schools an adequate supply of minor physical training equipment is absolutely essential if the lessons are to be made as varied and interesting as possible, and the activities and practices are to be of a stimulating and progressive character. A minimum supply to aim at is as follows:

- | | |
|------------------|---------------------|
| 4 footballs. | 8 short ropes. |
| 12 handballs. | 1 twenty-foot rope. |
| 12 bean bags. | 8 skittles. |
| 8 jumping poles. | Team colours. |
| 8 wooden hoops. | |

Further apparatus is, of course, necessary for organized games, and the nature of this depends on the games in use in each school (see *Supplement*).

Where difficulty is experienced in providing equipment much may be done in the way of improvisation. For example, old walking-sticks or broom shanks for jumping poles; last season's tennis balls for hand-balls; Vim tins for skittles.

Clothing

The standard of work obtainable will depend largely on the suitability of the girls' clothing. This certainly presents a difficult problem, but emphatically not an insuperable one, as has in many cases been proved. A school uniform is in many girls' schools a recognized rule, though not a compulsory one, and where the parents' co-operation and interest is won, they will generally comply with the wishes of the school and do their utmost to supply the children with the regulation dress. A tunic is accepted as the ideal school uniform because eminently suitable for daily wear at home or at school. From the point of view of physical work the best uniform to aim at is:

A serge tunic with knickers to match

A jumper of coloured cotton in summer, and wool in winter.

Long black or brown stockings.

Rubber-soled shoes (for use in physical training periods only)

The jumper is more useful than a blouse, as this, with knickers, provides an excellent dress for the drill lessons, the tunic being quickly slipped off in the cloakroom and replaced after the lesson. The wearing of tunics for drill impedes the freedom of some movements, as in jumping, and also tends to hide postural defects and malpositions.

CHAPTER IV

The Team System

The team system is now generally accepted as the best method of approach to physical training. Certainly since its adoption the work in the schools affected has reached a much higher standard and has become much more enterprising and educational, but only in the last few years have teachers begun to realize how far they may develop the work along these lines, and what splendid results in leadership and the team spirit may be achieved. The reason for this development is undoubtedly largely due to the enterprise of teachers in infant and junior schools, who have taken a keen interest and pride in working on the team system with the

little children, and in many cases have succeeded in reaching an amazingly high standard both of team work and team leadership with their classes.

On the other hand, many teachers still show a marked reluctance to embark on any advanced team work, in particular on sectional activities under leaders or a games organization where captains are used as umpires and coaches. If, however, the team system is presented to the class in its right light there need be no doubts as to its success or fear of impaired discipline and lack of effort. The children will work under their captains as happily and earnestly as under the teacher. Their interest in the work and their pride in their teams is too great to allow of slacking or disorderliness.

The main aims of the team system are:

1. To help the children to acquire a sense of loyalty and responsibility.
2. By friendly competition between teams to encourage the habit of whole-hearted and strenuous effort.
3. To encourage individuality and initiative, and by the use of captains and vice-captains to discover and develop powers of leadership.
4. By organizing sectional activities to make the lesson more varied and interesting, and to provide as much activity for all in a limited time.
5. To improve the standard of work generally by providing a keen incentive to work.

Infant and Junior Schools

In order to realize how far team work should have progressed by the time the children enter the senior school, it is necessary to trace it back to its origin in the infant school. Here the top class infants work occasionally in teams. They wear team colours, they run team races, and their leaders have little duties to perform.

In standards I and II the team system can be more definitely used. Team captains are chosen by the teacher for general all-round ability and are made to understand that their position is one of real responsibility. Whatever duties the teacher can trust them to carry out efficiently they should be encouraged to perform, and the position of captain should never be allowed to lapse into a mere sinecure if real training in leadership is to be accomplished.

In standard III, group work of a definite kind will probably first be attempted. In the agility section of the table teams may practise an activity under their captains, the teacher meanwhile giving criticism and advice to each group in turn. When sectional work is first introduced, it is best to let all teams practise the same activity, for much coaching both of teams and leaders will be necessary, and the instructions given will therefore apply to every group. It may be readily acknowledged that where the ten-year-old children have arrived at this stage of team work, the senior school teachers have a comparatively simple task in carrying it still farther and developing it along the lines of team leadership.

Senior Schools

The choice of team captains is important, and the teacher should use her own discretion as to whether the class is competent to elect their own leaders. In many cases the children will show great judgment in their selection and will probably work better for a captain of their own choice than one appointed by the teacher. It is, however, rather much to expect children of eleven or twelve to possess enough discernment to make in every case an unerring choice of leader. A fairly workable plan is for the teacher to nominate so many suitable children and let the class vote upon these. In the senior classes the choice may generally be safely left to the children if it is impressed upon them that character and general proficiency are both essential qualifications of a good leader. Captains should not be allowed to regard themselves as small dictators, and should be made to realize that leadership means *service*. They are there to help and coach their teams, to encourage weaklings, and to set an unflinching example of keenness, alertness, and effort.

Training of Leaders

A very good plan is to organize a leaders' class at first fortnightly, then monthly, and later it should only be necessary to call leaders together occasionally to discuss any special faults the teacher feels need stressing. These meetings will probably have to be arranged out of school hours, but the results should amply repay the teacher for the sacrifice of twenty minutes here and there.

Another good plan is to tell the captains at the beginning of each week what sectional work is to be taken, and what apparatus will be required. This saves elaborate explanations during the lesson, and captains are prepared to carry on with their groups as soon as the order is given. The following are suggestions for a captains' training class:

1. Unless leaders have been taught how to give a clear and arresting command, very indefinite work on the part of the team results. This is especially noticeable in jumping practices where a good landing and accurate finish is desired. If the leader has been trained (and shown the reason for the teacher's insistence on this point) to give the orders crisply and vigorously, and see that they are carried out accurately, a much higher standard of work will be attained. Most emphatically there is no need to sacrifice smartness and accuracy to team leadership. If this occurs it is a positive proof that something is radically wrong, not with the system itself, but with the method of working it out.

2. Practice should be given in jumping and landing, stressing points connected with accuracy and style.

3. Training in receiving is a most important part of a leader's duties. If the teacher is the only person competent to receive children when jumping, it necessarily restricts the choice and number of agility exercises used in sectional work. Many jumps which the children are capable of



GROUP WORK IN ELEMENTARY SCHOOL

Quick squat through living support; standing high jump over two backs, with support; leap frog; goal shooting from concentric circles.



GROUP WORK IN CENTRAL SCHOOL

Running jump over forms; balance walk on forms; number team passing; net ball shooting (two sections)

performing are not safe unless a responsible person is ready to receive, and it is an essential of good physical training that risk of accidents should be reduced to the minimum.

4. Guidance and advice as to markings of playground or hall.

5. Training in quick organization of team formations for various practices.

6. General points as to efficient leadership, stressing the importance of helping—and showing leaders how to help—the backward ones in their teams.

Errors to be Avoided

Though the team system can be made an unqualified success it also provides pitfalls which should be carefully avoided and guarded against. In the first place the team system may often be worked—quite successfully from a superficial standpoint—in the letter but not in the spirit. Teams may work in groups under captains, but the captains may be simply puppets made word perfect in their parts by the teacher. Leaders will need training and guidance but not rigid dictation, especially once they understand their position. The teacher may, in fact, keep too tight a hold on the organization and not allow the captains' personality to emerge or encourage them to show initiative and resource.

Another very frequent mistake is to retain the captains for too long a period and to make no use of vice-captains. Vice-captains should have a fair share of responsibility and should be made to feel that they are understudying the captains and preparing themselves for holding the same position later on. It is quite understandable that when excellent captains are discovered it is tempting to keep them indefinitely. To do this, however, is to defeat one of the aims of the system, that is, training in leadership—not for the obvious few, but for as many as possible of those who with guidance and help may be encouraged to stand out as leaders. Quite a good plan is to make a rule that each leader retires at the end of a term or half-term, the vice-captain being promoted and a new vice-captain elected.

Again, it is sometimes noticeable in sectional activities that leaders never take part in the work themselves but simply command their teams. This is entirely wrong; in the first place, it sets the leader apart as a sort of teacher's deputy; secondly, she is missing work which is as beneficial to her as to the rest of the class; and thirdly, she has presumably been chosen partly on account of her ability to demonstrate movements correctly for the benefit of her team.

A very frequent cause of team work failing to "go" as it should, is the leaving of groups too long at each practice. The children are apt to flag mentally and physically, and the captains tire of repeatedly giving the same advice. A good arrangement is to direct the leaders to see that everyone has a certain number of turns at each activity before taking their teams on to the next. It will seldom be found that each team can

take more than two practices in one lesson, otherwise the changes from one activity to another will be so frequent that adequate practice of each will be impossible.

In certain activities, teams should practise in groups graded for ability and having no connexion with the usual teams. For instance, in leap frog it is hardly likely that every member of a team will be able to execute the jump at the same height and with the same style or finish. Four groups might then be set to work in this way:

1. Those who can clear a low back and need help.
2. Those who can clear a low back without help.
3. Those who can clear a moderately high back without help.
4. Those who can clear a very high back, or two backs. This section should be under the teacher's charge, the others under reliable leaders.

Where aiming practices are used for group work the organizing of sections by proficiency is again to be recommended. When teams consist of more than eight members, still more individual practice is possible if teams are split into two sections, each working under captains and vice-captains respectively.

Finally, it should be clearly understood that only those movements already taught to the whole class should be practised under captains, and on no account should any of the formal exercises be given into their charge.

Team Colours

Team colours are essential to the satisfactory working of the team system. The most useful kind is the coloured band worn over one shoulder and under the other, as by this means a team member may be easily distinguished either from the front or back. Team colours appeal to all ages of children as being a visible sign of team membership. Added to which, if unmarked by distinguishing colours, the children cannot possibly use quick and accurate tactics in games where teams are intermingled.

From the teacher's point of view they are an immense help in quick organization and easy handling of large classes, whether in drill or games, and in the latter case efficient coaching and umpiring cannot be attempted without the use of distinctive team colours.

CHAPTER V

Organized Games and Athletic Sports

Although—or possibly because—a games period is a much more informal affair than a drill lesson, it seems to present greater difficulties in successful organization. This is probably partly due to the fact that the Board's syllabus provides a definite scheme for drill, but in the case of games no such defined plan is possible owing to the widely differing circumstances among the schools. The scheme for games must necessarily be based upon the available accommodation, and where a field is accessible much wider scope is offered in the variety and type of games possible. Where a playground is the only accommodation, the games scheme can be adapted to the size and shape of the yard and the number of children in the class. A playing field, while the obvious and ideal games accommodation for every school, is certainly an essential of enterprising games organization in senior schools.

The proper markings of playgrounds and playing fields is a point which undoubtedly helps materially towards successful organization. In the playground permanent markings are best, for by this means not only is time saved but also a game may be practised at any moment either during physical training periods or in playtimes. White paint, of the kind used for traffic guidance on the roads, is very satisfactory for a dark surface such as tarmacadam. On a light surface such as concrete, a mixture of tar and paraffin shows up well and has been found more durable than paint. Where markings of games overlap, it is advisable to use different colours for the marking of each. In the case of a playing field, white markings are most satisfactory, but not generally feasible. A good method of marking for winter games is by cutting and turning the sods, and this will last for the whole season. The summer games, such as stoolball or rounders, require little marking, but a good supply of flags is essential.

Care should be taken, where both a field and a playground are used, to differentiate between games and practices suitable for each. Relay races and many minor games can be very successfully played in the school yard, therefore the enterprising teacher will not include these in the field programme, but devote the time to those games where wide spaces are essential to effective play.

The Games Scheme

The best arrangement is to draw up a comprehensive scheme which embraces tables, breaks, agility exercises, practices, and games. The following example is suggested as a scheme suitable for a class of girls of 13-14 years.

DRILL TABLES 61-72 FROM THE 1919 SYLLABUS

General Activity Exercises suitable for Breaks.	Active Group Games and Races suitable for Breaks.	Agility Exercises and Practices suitable for Group Work.	Relay Races and Minor Games suitable for use at end of Drill Lesson or in Games Periods.	Organized Games for Games Periods.
<p>Four-cornered Tug-of-War. D.S.</p> <p>Line Tug-of-War. D.S.</p> <p>Running with various forms of free jumping introduced. D.S.</p> <p>Gallop, spring, skip steps, &c., in various sequences and formations.</p> <p>Grand Chain, skipping.</p> <p>Quick changes of formation.</p> <p>Quickness tests.</p> <p>Jump the swinging rope. D.S.</p> <p>Running high jump in fours over rope, or to head rope stretched high across yard.</p> <p>Springs. G.W.P.</p> <p>Also see Syllabus, p. 200.</p>	<p>King of the Ring. S.</p> <p>Circle Race. S.</p> <p>Ball Touch. S.</p> <p>Free and Caught. S.</p> <p>Hands Joined Tag. S.</p> <p>Poison. S.</p> <p>Catch Your Tail. G.W.P.</p> <p>The Sieve. G.W.P.</p> <p>Lifting Race. G.W.P.</p> <p>Composite Activity Race. G.W.P.</p> <p>Jockeys and Horses. G.W.P.</p> <p>The Hunter and His Dogs. G.W.P.</p> <p>Throw It and Run. G.W.P.</p> <p>Thread the Needle.</p> <p>Paddy Out.</p> <p>Whistle Race. S.</p> <p>Chinese Wall. S.</p> <p>Catch Your Partner.</p> <p>Runaway Horses.</p>	<p><i>Various forms of high jumping, &c.</i></p> <p>Running high jump over rope.</p> <p>Standing high jump over rope.</p> <p>Oblique jump over rope.</p> <p>Running jump to head object.</p> <p>Hop, step, and a jump from standing or running start.</p> <p><i>Supported Jumps.</i></p> <p>Leap Frog.*</p> <p>Jumping in threes.</p> <p>(a) Skip jump on spot. 2 supporters.</p> <p>(b) Standing high jump over one or two backs. 2 supporters.*</p> <p>(c) Running high jump over 2 or 3 baskets. 2 supporters.*</p> <p>Bunny jump over a kneeling support.</p> <p>Quick squat through living support. 2 supporters.*</p> <p>Skipping practice.</p> <p>Aiming practices.</p> <p>Bowling, batting and fielding practice. See Supplement for Older Girls.</p> <p>Ball bouncing contests.</p> <p>Quoit Tennis.</p> <p>See also Syllabus, p. 200.</p> <p>* See plates of group work, facing pp. 98 and 108.</p>	<p>Straddle Relay. G.W.P.</p> <p>Stick Jumping Relay. G.W.P.</p> <p>Target Relay. G.W.P.</p> <p>Circle Bouncing. G.W.P.</p> <p>Wheel Relay Passing. G.W.P.</p> <p>Bail and Hoop Relay. G.W.P.</p> <p>Goal Shooting Relay. G.W.P.</p> <p>Square Spry. G.W.P.</p> <p>Composite Passing Race. G.W.P.</p> <p>Jump and Throw Relay.</p> <p>Netball Jump and Catch Relay.</p> <p>Word Making Number Race.</p> <p>Skipping Relay.</p> <p>Overhead Bean-bag Passing with 3 or more bags.</p> <p>Bounce and Arch. Tunnel and Toss Relay.</p> <p>Dodge Ball and Variations. G.W.P.</p> <p>All In Dodge Ball.</p> <p>King Ball.</p> <p>Tower Ball. G.W.P.</p> <p>Moving Target. S.</p> <p>Circular Rounders.</p> <p>Goal Shooting Rounders. G.W.P.</p> <p>Also see practices in Supplement, Chapters IV and V.</p>	<p><i>Winter</i></p> <p>Touch and Pass. Supplement.</p> <p>Fusillade. G.W.P.</p> <p>Nine Court Netball. G.W.P.</p> <p>Netball.</p> <p><i>Summer</i></p> <p>Rounders. See Supplement.</p> <p>Stoolball. See Supplement.</p> <p>Newcombe. See Supplement.</p>
<p>D.S. = 1919 Drill Syllabus.</p> <p>S. = Suggestions in Regard to Games.</p> <p>G.W.P. = Games Worth Playing.</p>				

Progression

A gradual building up of agility and skill is essential if the ultimate achievement of a high standard of proficiency in games is to be realized. The senior teacher may reasonably expect much of the spade work of such training to have been carried out in the junior school, where aiming, catching, and throwing should have been consistently practised, and moderate skill attained. Children on entering the senior school should also have some idea of marking and dodging, have learnt to be physically and mentally alert, quick and agile in their movements, and to understand the importance of playing a game according to the rules.

If the children's interest is to be maintained and their full effort willingly expended, they must be made to feel that a wider field of skill in play is open to them on moving up into the senior classes. The easy games they played as juniors will no longer appeal to them in the same way as games demanding cleverer tactics, more skilful ball control, and in which the combined strength of one team is pitted against that of an opposing side. Here also the games become of more individual interest in that there is scope for specialization in certain positions on the field, and though it is advisable that every girl has practice in the various places, yet it is only natural that she should be allowed to concentrate on the play for which she is best adapted. In netball, for instance, a girl who is of little use as a centre may excel at shooting, and *vice versa*, or similarly in stoolball a girl, though showing no skill as a batsman, may prove an expert bowler or fielder. Where children have passed through the stages of minor games to the bigger organized games of a more advanced nature, progression is still possible by raising the general standard of play.

Winter and Summer Games

In considering the question of games and practices suitable for senior girls, it will be best to class these as winter and summer activities. The games played during the colder months should naturally be those involving most movement and warming exercise. Broadly, one may classify those games played with a netball as the main winter games, and those with a small ball as most suitable for warm weather.

Certain general principles apply to both types of games and many practices are equally valuable for the one as for the other, as for example training in agility, speed of foot, catching, throwing, and aiming. Much of this training is given in the drill lessons especially as regards agility and speed, and most of the ball practices may advantageously be taken in the section work of the table. This is perhaps the best time in which to concentrate on such practices, otherwise the organized games period may drag owing to too much time being spent on practice and not enough on the games themselves. A short period of general practice at the beginning of a games lesson is advisable, but in each period every child should participate in an organized game so that all may benefit from the strenuous

play, co-operative effort and team work, and experience the enjoyment that these can give.

Where summer games differ most from winter games is that they are more concerned with the individual. For instance, in stoolball the bowlers, batsmen, and fielders have a more individual part to play than have the members of a team in a game such as netball, where more depends on team combination as a whole. Summer games also test the children's powers of concentration more searchingly, it being much easier to keep one's mind on a game when the whole side is moving in a concerted effort, than to do so when standing alone as a fielder, when the ball may not actually come one's way once in ten minutes.

Whatever organized games are chosen for winter and summer use in each class, a definite leading up to and preparation for these is necessary. In winter ball games the first essential is that children should acquire skill in catching and throwing the ball, and this they will probably have mastered in the junior school. Games involving a stationary catch and throw may be taken to gain speed and dexterity in this practice, such as Zig Zag Passing versus Running Relay; Corner Spry; Double Circle Pass Ball; North, South, East, and West.

Later practices in catching and throwing the ball on the run are useful as in Running Circle Catch, Team Passing in Couples, Halt and Pass Ball, Number Team Passing, Netball Jump and Catch Relay. Next, games and practices in which interception is introduced might be concentrated upon, as for instance Number Team Passing with one or more interceptors, Circle Pass Out, End Ball, Square Ball, All In Dodge Ball. Speed and accuracy in shooting may also be encouraged by competitive practices, contests, or games, for example: Shooting from Concentric Circles; Goal-shooting versus Zig Zag Passing; Goal-shooting Relay; Goal-shooting Rounders. A number of netball rings fixed to school walls are a great help in providing facilities for constant practice in shooting.

There are many good games within the average ability of eleven to twelve-year-old children which are good preliminary training for netball, but more suitable as regards simplicity of rules and accommodation of greater numbers. Among these are Court Team Passing, Skittle Ball, Fusillade, and Nine Court Netball, all of which embody practices in throwing, catching, marking, and dodging, and in which the main methods of play coincide with those of netball.

Netball is generally considered the ultimate aim as an organized winter game for elementary girls' schools, but it is well to remember that there are other games as good, and in some respects better, because providing more places on the field, giving scope for more individual enterprise, and setting a higher standard of fleetness and endurance in running. Touch and Pass is an excellent example of this type of game.

During the summer term, catching and throwing practices would mainly be taken with a small ball. Girls should be allowed to practise and acquire complete confidence with a soft ball (tennis or sorbo) before

attempting to become proficient with a hard ball such as is used for regulation rounders or stoolball; otherwise fear will in all probability be detrimental to accuracy and precision in catching.

Taking stoolball and rounders as the main organized games for the summer term, the practices for these are chiefly concerned with fielding, bowling, batting, speed of foot, and nimble movement. All practices or games where accuracy in catching and throwing is involved are valuable in this respect. The overarm throw is surer in aim and swifter than the lob throw, and as this does not come naturally to most girls, needs much practice. Ground fielding practices are also useful and are best taken at first in a stationary position. Later, the same practice may be progressed by the fielder running forward to meet the ball and gathering it into her hands on the run. Many of the ordinary catch and throw relays may be converted into ground fielding practices. The weakest part of fielding is often the weak backing up of one fielder by another, and the need for this should be explained and demonstrations given proving its effectiveness. Bowling and batting practices may also be made competitive and extremely interesting to children.

The Coach

Games coaching is certainly an art more difficult to acquire than the efficient teaching of more formal activities, but the main aim should be to work on a sound, progressive scheme, concentrating on the class as a whole and paying as much attention to the backward children as to those of outstanding ability. Enjoyment of the games period is a *sine qua non* of successful administration, and it is as much from the teacher's manner and method of handling her class, as from the play itself, that the enjoyment will be derived. A knowledge and understanding of rules by players will considerably help the teacher, and make the game more enjoyable to the children. This knowledge may, through time, be gained incidentally during practices, but the best plan is for each class to have the rules of the game they are playing hung up in the classroom for reference purposes. Games periods on wet days may very profitably be partly spent in explaining and discussing rules and tactics and illustrating these by blackboard diagrams.

Child Umpires.—The training of umpires is also a valuable part of the children's games education. Much help and guidance will be necessary, but the training in leadership given in drill lessons should be productive of good results in this connexion also. It is not advisable to leave a game for any length of time in charge of child umpires, until the teacher is confident that they are capable of distinguishing fouls and giving correct decisions as to penalties.

The Games Spirit

No games organization, however perfectly planned and administered, can be of full value to the children unless the right spirit is there, and where

this has been fostered from the infant classes upwards the senior teacher's task is very much easier.

A standard of fair play and good form will surprisingly soon take root, and from this is derived much of the educational and social value of organized games. Courtesy to and consideration of other players, whether allies or opponents, are qualities to be warmly encouraged, while every trace of roughness, foul play, and uncontrolled temper should be looked upon by the children as regrettable lapses which will inevitably bring discredit upon their class or school. It is by no means impossible to create this feeling among the children. Certain things are simply "not done", and this rather negative code of behaviour may be sown as profitably, and revered as deeply, in the elementary as in the public schools. But whereas in the latter case there is tradition to build upon, in the elementary girls' schools of to-day a games tradition is only in the process of being founded. It rests at present with the teachers to set the standard of behaviour in games, a standard which must inevitably influence behaviour under ordinary circumstances of daily life. William James in his *Talks to Teachers* paid a very high tribute to the powerful influence of games when he said: "The strength of the British Empire lies in the strength of character of the individual Englishman, taken all alone by himself. And that strength I am persuaded is perennially nourished and kept up by nothing so much as by the national worship in which all classes meet, of athletic outdoor life and sport."

For detailed descriptions of games and practices, suggestions for organization of games periods, planning of yards and fields, and points in connexion with coaching and umpiring, see the Board's *Supplement for Older Girls*, Chapters IV and V. The majority of the games mentioned above may be found in *Suggestions in Regard to Games*,¹ *The Rural Syllabus*,¹ *The Supplement*,¹ and in *Games Worth Playing*² by Donald McCuaig and Grant S. Clark.

Match Play and School Leagues

The difference between practice and match play is that in the former case the game is coached, and tactics suggested and practised, whereas in matches the game is simply umpired. The two main values of match play are:

1. The children are given an opportunity of testing their proficiency and comparing the standard they have attained with that of another team.
2. The meeting of children from other schools and districts and the duties as hostesses or visitors provide a valuable social training and help to widen the children's outlook generally. The playing of inter-school matches is for this reason to be encouraged, provided that the games spirit throughout the school is good and the right perspective maintained.

On the other hand it must be admitted that the frequent playing of

¹ Board of Education.

² Longmans, Green & Co.

school matches does, undoubtedly, constitute a danger in that the first school teams may, at the expense of the weak or average players, receive a greater proportion of coaching and practice than is their fair share. It is questionable too whether these children are not sometimes taxed beyond their strength by too frequent practices and matches, and by the mental strain and excitement caused by these. The overdoing of first team matches in a school to the detriment of the games standard of the majority is directly antagonistic to the right games spirit. There is far more credit due to a school which can produce two or three teams in every class of a good average standard, than to the school which can boast of an invincible first team, but whose standard below that is uniformly mediocre or weak.

League matches are perhaps the cause in many cases of overcoaching school teams. Leagues are presumably formed with the object of encouraging the introduction and establishment in schools of a definite organized game for girls, and, by providing inter-school competition, to increase proficiency in the technique and tactics of the game, so raising the standard of play generally.

The unfortunate fact about leagues is that very often feeling is allowed to run too high and an unfriendly rivalry creeps in. If inter-school leagues could be run on the plan that no girl played in more than one league match per season, then they should certainly prove of great value to school games. In this way a good proportion of senior girls would share in the pleasure and honour of playing in league matches, while at the same time it would do away with the overcoaching of the few most brilliant players.

League and school matches also offer good scope for training children along administrative lines. There is no reason why elementary school girls should not run their own games in the same way as is usual in secondary schools, and to delegate responsibility to a self-governing body of school-girls is undoubtedly a much more enterprising organization than one in which the teacher retains entire control.

Inter-form matches, or matches arranged between teams recruited from one class and played in the ordinary games period, are excellent, and none of the possible disadvantages of league matches can apply to these. The house system also, where in operation, will provide opportunities for many inter-form or class matches.

Finally, it should be remembered that, though competition is an undoubted spur to effort, and a valuable means of keeping interest keen and eager, there are dangers in this connexion it is foolish to ignore. If competition, whether inter-class or inter-school, produces an unfriendly rivalry or the desire to play for the sake of winning rather than for the joy of the game itself, then it is wise to call off all matches until the children have acquired a more sporting attitude towards their games.

Athletic Sports

The growing popularity of public sports meetings for children is a problem which the teacher will be well advised to consider carefully

before lending any encouragement to these organizations. In many cases monetary prizes are awarded, and individual children are highly trained—a practice in direct opposition to the fundamental principles and ideals of physical education in schools. Personal attainment is the only ambition of each competitor and there is no question of fostering the spirit of communal effort.

An annual sports day, on the other hand, organized by the school in school hours, and run in such a way that all children may participate in at least one event and none in all, is a vastly different matter. Such an occasion is also an asset to the social side of school life, affording as it does an opportunity to invite the parents and interest them in the physical activities of the children. A sports day is most profitable when run on house or team lines, and when no individual prizes are awarded. As wide a range of activities as possible is advisable, including non-athletic races, so that every child may feel that there is some event for which she is fitted to enter. Flat races, when included in the programme, should be short. Sprinting makes enormous demands on the body, and may therefore be highly injurious if attempted without proper training, over too long a course.

The suitability of long and high jumping for girls is a much debated question, but where systematic practice in jumping is taken in physical training lessons, there seems no adequate reason for the rigid exclusion of such events, provided that proper care is exercised as regards safety in the take-off and in the landing. House or form relay races of various kinds are excellent in that they include a large number of children and encourage team work.

The usual drawback to sports is that the most athletic children, if allowed to enter for many races, are left in all the finals, so making overstrain a danger on the sports day. This may be avoided by providing facilities for preliminary practice, and by the adoption of an arrangement tabulating events under several headings, such as the following:

- A. Jumps; e.g. long, high, hop step and jump.
- B. Ball throwing and aiming contests; e.g. throwing the cricket or netball, netball shooting, &c.
- C. Racing; e.g. flat races and agility races such as obstacle, sack, three-legged, potato race, &c.
- D. Non-athletic events; e.g. blindfold driving, egg and spoon, elephant and arithmetic race, &c.
- E. Relay races.

If children are allowed to enter in one event only in each group, each child will in this way compete in four events only.

Where no field is available for school sports, "potted sports" in the playground may be made very interesting and are thoroughly enjoyed by the children. These will, of course, necessarily be organized for a class at a time and be taken during an ordinary physical training period.



GROUP WORK IN CENTRAL SCHOOL
Leap frog; run along form and high jump over rope.



PLAYGROUND DANCING
The Irish Jig to Tin Whistle

CHAPTER VI

Dancing and Swimming

Dancing

Where dancing can be included as part of the physical training in girls' schools, the first problem that arises is the kind of dancing most fitted to the children's needs and likely to afford the most enjoyment. The main types of dancing attempted in elementary schools are English country dances, Scandinavian and National dances, and eurythmics. While eurythmics is an excellent training in musical appreciation and rhythm of movement, the teaching of this branch of dancing should only be undertaken by a teacher definitely qualified in this respect and of really gifted musical ability. Even when taught by an expert and full benefit is derived from such teaching, it is a subject which should be looked upon as a part of musical rather than physical training.

The other types of dances mentioned are all eminently suitable for school use. In English Country Dances the steps are simple, and the dances can be graded in difficulty for the needs of the various classes by the intricacy of the figures to be performed. National dances, such as the Hornpipe, Irish Jigs, Welsh dances, the Highland Fling, Scottish Reels, and Scottish Country Dances, are of a more advanced type in that good foot-work is essential and intricate steps must be mastered. Scandinavian dances, of which three series are now published, offer in themselves a progressive scheme of complexity of figures and difficulty of steps.

Factors governing choice.—When making a choice of dances for use in each class there are several points to be considered in judging their suitability.

1. The previous training of the children must be taken into consideration. Where no preliminary training has been given, a certain amount of elementary work will be necessary before attempting a programme of dances such as already mentioned.
2. The dances taught should be simple enough for every child in the class to be able to join in and derive from them real enjoyment, but at the same time every dance taught should not be so easy that there is no progressive training in co-ordination underlying it.
3. Dances, where a quick time is used, are generally more suitable for class teaching than those to a slow and dreamy rhythm. The more active the dances, the more the children will enjoy them; and slow time lends itself to affectations of pose and carriage, which are of all things least to be desired.

Teaching Principles.—In the actual teaching of dancing there are a few useful principles which it is well to keep constantly in mind. One of the most frequent causes of poor dancing is the failure of the children to listen to the music, and to dance the steps and figures with an entire

disregard for the correct phrasing. To guard against this there are many helpful practices which might be given for a few minutes at the beginning of each dancing lesson where children are still at an elementary stage: for example, beating out the time with hand clapping; moving with whatever step the music indicates while the pianist plays loudly, standing still when she plays softly, and so on; aiming at impressing upon the children the necessity of listening to the music.

As much movement as is possible in the time should be aimed at. Where floor space permits it is advisable to have all the children dancing, rather than teach half the class, or even one set only, at a time. A dance to be well taught should be built up little by little. In the case of a dance where a new step is introduced, it is well to teach this first to the whole class in files or loose group formation. Dance steps may also be worked into drill lessons in the agility or introductory sections or as "breaks". Good posture should be stressed as insistently in dancing as in any other type of physical training.

A good plan to assist in the easy handling of a large class is for those girls taking boys' parts to wear a coloured band. This is also a help to the children and lessens the likelihood of mistakes and confusion.

It is frequently the case that dancing is only included on the timetable in schools which possess a hall and piano and where the teacher is an expert pianist. These conditions, though ideal, are not essential. A gramophone will prove a fairly satisfactory substitute for a piano, and even where no hall is available a modified scheme of dancing can be used in the playground. In this case the music may be supplied by a violin, a gramophone, or a tin whistle (see plate facing p. 108, "The Irish Jig")

Innumerable dances of a simple kind, requiring little teaching but enjoyable from the point of view of free rhythmic movement, may be improvised for playground use. If these are set to easy, familiar tunes, such as nursery rhymes or national songs, they may even be danced with only vocal accompaniment. Dancing, even of the most elementary kind and when performed only to a sung accompaniment, will give real enjoyment to the children, and much can also be achieved by this means in the way of neat foot-work, flexibility, and rhythmic training.

Swimming

There are only two or three points in connexion with swimming that need be stressed here.

The aim in providing swimming instruction in elementary schools is not to produce a few experts but to teach as many children as possible to swim. It is obvious, therefore, that individual tuition is impracticable and that class teaching is the only satisfactory method to employ.

Whenever possible it is undoubtedly advisable that swimming instruction be undertaken by members of the school staff, rather than by baths' instructors. In the first place this makes the swimming lessons very much more part of the school training, and in the second place

teachers are generally more adept in the handling of numbers and have more experience and knowledge of class methods. In many cases schools have the use of baths only during the summer term or for so many months in the year. Swimming lessons are necessarily short periods and therefore, since land drill is an essential part of swimming instruction, it is advisable to concentrate on this preparatory to the teaching given at the baths. If, for instance, ten minutes of the time allotted to physical training were devoted each week during non-swimming periods to land drill, more rapid progress could be made at the baths when available.

In modern methods of class teaching it is seldom necessary for the teacher to enter the water, control and direction of the class being more easily accomplished from the side. Nor is it necessary for the teacher to be an expert performer herself. The main essential is to possess a thorough understanding of the best teaching methods, to be able to impart knowledge to the class in the most helpful manner, and to gain the children's complete confidence, inspiring them with fearlessness and enthusiasm.

The value of swimming as a physical and mental education is high, and obvious to all. Added to which no better means for the training of children in hygienic habits of personal cleanliness can be found, nor of impressing upon them the responsibility of the individual to the community in this respect.

For guidance in class instruction in swimming see the 1919 syllabus, appendix D, and *Swimming Instruction*, issued by the Amateur Swimming Association.

PHYSICAL TRAINING FOR BOYS

BY

A. H. GEM

Organizer of Physical Training to the London County Council

PHYSICAL TRAINING FOR BOYS

CHAPTER I

Introductory

Whether a teacher has received a one or two years' course at a physical training college, or whether he is a teacher of general subjects, who has acquired some knowledge of physical training by attending local evening and holiday courses, his objective will be the same—namely, the maintenance of health in his pupils and the building up of their bodies and their characters to withstand the wear and tear of life. The means by which he will attain these ends will differ somewhat, as the more fully trained teacher has a wider range of work which he can employ to achieve his aims. The conception of physical training has changed very considerably from the view formerly held, and an effort is now made to present the work in such a way that it is not only good but also enjoyable. There can be no doubt that anyone works better at a task which is thoroughly enjoyed, and the work should thus be planned in such a way that all may benefit to the fullest extent, whilst at the same time the lessons must be vigorous and stimulating.

The scope of this section is confined to the work of junior, senior, and central schools—particular attention being given to the two last named.

The Teacher

As in all subjects, the success of a physical training lesson almost entirely depends on "the man behind the gun".

The writer has many recollections of teachers who, in spite of having high technical qualifications, yet fail to achieve the success obtained by men of far less technical knowledge who have, however, a vivid personality and the natural ability to present the subject effectively. The subject should therefore be approached with the determination that any lack of technical knowledge shall be counterbalanced by enthusiasm, drive, and good teaching.

It may safely be assumed that the vast majority of teachers who take this subject in senior and central schools have not attended a full-time

physical training college, and the question of acquiring a working knowledge of the subject thus presents some difficulty. Many progressive local education authorities have appointed organizers of physical education. These organizers are essentially practical men and women who are well acquainted with the problems which have to be faced. Teachers should get into touch with the local organizer and ask for advice and help—it will be readily forthcoming. Where there are organizers there are certain to be evening courses for teachers, so the first available opportunity of attending such a course should be taken. As a rule classes of different types are held, designed to meet the needs of varying types of school. In an area in which there is no organizer and no local course, teachers should certainly try to attend one of the approved summer courses such as the Educational Handwork Association Summer School at Scarborough¹. Furthermore, when H.M. Inspector of Physical Training is in school he should be asked to take a demonstration lesson with a class of boys. Valuable help may be obtained in this way. With the development of senior and central schools an increasing number of partial specialists in physical training is required. The duties of such a teacher will probably be to take the physical training of a portion of the school (perhaps the whole school), to assist with the school games and swimming, and possibly to take hygiene and personal health talks.

The Teacher and Health Talks

The acquisition of good health habits is of such importance that it is surprising that more attention is not paid to it. A simple yet effective syllabus of talks on personal health should embrace the following:

1. Cleanliness of the body—inside as well as outside.
2. Tidiness of clothing—danger of wet clothes and feet—undesirability of over-clothing.
3. Value of fresh air—open windows at night—necessity of sufficient sleep.
4. Use of handkerchief—deep breathing—nasal breathing.
5. Care of eyes—care of ears (well cleaned and carefully dried)—care of teeth (at least a daily clean).
6. Wholesome food—good eating habits.

These questions are dealt with in detail in the *Handbook of Suggestions on Health Education*, issued by the Board of Education.²

Accommodation

For senior and central schools a gymnasium would be an undoubted acquisition, although much valuable work can be carried out without one. The average senior and central school will probably have to confine the work to the school hall and playground.

¹ Details may be obtained from Mr. H. A. Cole, Education Offices, Sheffield.

² Publishers, H.M. Stationery Office.

(i) WHERE A GYMNASIUM IS AVAILABLE

Provided the structural conditions permit, and on the assumption that there is available a teacher sufficiently well qualified to teach the work, the following list of apparatus is suggested:

32 Sets of wall bars.	1 Vaulting horse.	1 Vaulting box.
2 Double beams, fixed to work on the overhead rail principle.	1 Vaulting buck.	
4 Beam saddles.	4 Gymnastic mats.	
6 Eleven-foot gymnastic benches fitted with hooks.	1 Jumping stand and rope.	
10 Climbing ropes with necessary tricing lines.	1 Bag or box containing a supply of apparatus for games—such as footballs, tennis balls, ropes, and team colours.	

(ii) WHERE THE SCHOOL HALL ONLY IS AVAILABLE

Of necessity only portable apparatus can be employed and the following items are suggested:

6 Eleven-foot gymnastic benches with hooks.	1 Jumping stand and rope.
4 Gymnastic mats.	1 Bag or box of apparatus for games as specified above.
1 Vaulting buck.	

When the teacher has become thoroughly used to handling this range of apparatus and has increased his technical knowledge of the subject, a vaulting box might be added.

Clothing for a Physical Training Lesson

Closely akin to the question of general equipment is that of the boys' personal equipment for the work. It is most desirable that boys should make a complete change into singlets, shorts, and shoes. If the lesson is to be of real value it will be very vigorous and the boys are bound to get hot. The value of a complete change of clothing and a good rub down is obvious under these conditions. Should a complete change prove an impossible ideal for the present, the boys' ordinary clothes should be adapted. Coats, waistcoats, collars, mufflers, and the many unnecessary items of clothing with which boys are frequently swathed should be removed. The boy should work in his shirt and shorts with his sleeves rolled up and the shirt open at the neck. Braces should be removed and a belt worn instead. The removal of stockings is also desirable, and it has the advantage of ensuring that legs and feet are kept clean.

Rubber-soled shoes should be worn—not only do they give lightness and speed to a boy's movements, but they are also a safeguard against falling and slipping, and, if apparatus is to be used, are absolutely essential.

CHAPTER II

Construction of the Lesson

Before considering any schemes of work or specimen lessons, there are certain general laws which govern the construction of an effective table of exercises. When selecting the exercises of which the lesson is to be composed, there are two main considerations to be kept in mind:

- (i) All the elements necessary for a well-balanced physical development should be included in their due proportions.
- (ii) The lesson as a whole must afford a period of exercise which is stimulating, interesting, and enjoyable.

The elements necessary to a well-balanced physical development may be broadly classified under two headings:

- (i) Movements which produce good posture.
- (ii) Movements which help to procure a correct functioning of the various bodily systems.

In the main the more formal exercises cater for the former, whilst the general activities, games, folk dances, &c., have a very direct bearing on the latter. We thus find that every lesson should contain a due proportion of formal and recreative work so arranged and blended that the whole period is vigorous, stimulating, and enjoyable.

Junior Schools

The teacher in the junior school will find his tables already compiled for him in *The Syllabus of Physical Training for Schools*, issued by the Board of Education in 1919.

If the tables are carefully studied it will be found that their structure has been governed by the principles already stated. It should be realized that a table contains many lessons, and the teacher should make a judicious selection from the exercises given in any particular table in order to form his lesson.

It will, moreover, be found that each table is arranged in a certain definite order, and thus the selection of exercises from a table to form a lesson should follow the same order. The form of every lesson should be:

- Group 1.* Introductory—Running, Breathing and Leg Exercises.
- Group 2.* One or more Dorsal Trunk Exercises.
- Group 3.* An Arm Exercise.
- Group 4.* A Balance or Leg Exercise.
- Group 5.* A Lateral Trunk Exercise.
- Group 6.* General Activity Exercises.
- Group 7.* Final—Simple Leg Exercise and Breathing.

A lesson should last for twenty minutes, ten minutes of which should be spent on groups 1 to 5 inclusive, and ten minutes on groups 6 and 7.

It should be noted that in many of the tables several exercises are given in the various groups. These exercises are intended to be alternatives. There will neither be time, nor is it desirable, to take all these alternatives in any given lesson. There is, in the opinion of the writer, one exception to this general principle. In the first trunk group (i.e. the dorsal group) it is advisable to take two exercises whenever possible: one of the nature of head pressing backward, and the other of the nature of trunk bending forward or trunk bending downward.

The teacher must make his selection, and by judiciously changing the exercises from lesson to lesson the work may be kept fresh and varied. If the changes are regularly made there will be ample time during the currency of a table to teach all the exercises given in it. When a table has been completed, and it is desired to change to the next, a group at a time from the new table should be incorporated until the complete change has been made. Any attempt to change *en bloc* from one table to another will inevitably mean that the lesson will lose its "flow" owing to the excessive time taken in teaching so many new exercises at once.

It is desirable to use two or more "breaks" between the groups devoted to the formal exercises (see p. 132).

It is with regard to group 6—the General Activity group—that the greatest difficulty is usually experienced. Although the official syllabus clearly suggests certain lines of development for this portion of the lesson, the writer frequently finds that the General Activity group is taken to mean a game, with perhaps a short run added. The General Activity group is the recreative period of the lesson in which the selected movements exercise the whole body and are, moreover, general to the whole class. Many types of movement can be included in group 6, such as running, marching, jumping, games, folk dances, &c. If a General Activity section is to be complete and to balance the formal section of the lesson, not merely in terms of minutes but also in terms of value, it should contain marching; running; jumping; and a game or a dance.

Senior and Central Schools

The planning of the lesson for junior schools is a comparatively simple matter, as very definite guidance can be obtained from the 1919 syllabus. In the case of senior and central schools the matter is, however, much more complex, as no official syllabus has been published and the teacher has little to guide him.

The 1919 syllabus can, of course, be followed until the boys are just 14 years of age and a change on to more advanced work made for the last period at school.

This arrangement has, however, disadvantages. The change to advanced work will almost certainly mean the use of a certain amount of apparatus, and if no attempt is made to introduce a boy to this type of work until

the beginning of his fifteenth year, he will be able to accomplish very little in the time remaining at his disposal and the work will therefore lose something of its effectiveness. The better plan is to continue to use the 1919 syllabus as the basis of the lesson, but at the same time to introduce some of the most appropriate of the more advanced exercises from the time of the boy's entry to the school. This particularly applies to jumps, vaults, and agility movements.

We thus find that from 11+ to 13+ years of age the formal section of the lesson may be drawn from the 1919 syllabus, whilst the General Activity section is strengthened by the inclusion of some of the more elementary jumps, vaults, and other forms of agility, from the advanced range of work. When a boy starts his third year in this type of school, not only is the idea of the advanced General Activity group continued, but more vigorous free standing exercises replace those formerly drawn from the 1919 syllabus. It is at this stage that the greatest difficulty will be experienced, as the teacher will have in his hands the entire responsibility for constructing suitable lessons.

Assuming that a senior or central school lesson lasts for thirty minutes, we arrive at this position:

15 minutes of the more formal exercises	} 30-minutes lesson.
15 minutes of the more recreative exercises	

Before we can proceed to the task of filling in the details of these two main sections there are certain other points of general interest to consider:

- (i) The exercises selected must be appropriate to the age and ability of the boys: they should neither be too easy nor too difficult. The boy should be expected to exert himself, but not be unduly fatigued.
- (ii) The number of exercises in the lesson must bear a strict relation to its duration. It should be remembered that if an exercise is to have the desired effect it must be repeated a sufficient number of times. It is a mistake to overload the lesson with too large a number of exercises: such a practice will merely lead to a breathless rush from exercise to exercise, without obtaining satisfactory results from any of them.
On the other hand there must be a sufficient variety of movements included to prevent the lesson from becoming dull and monotonous.
- (iii) The strenuous exercises which make a considerable demand for general or localized effort should not be crowded into the opening stages. The lesson should open with a period of exercise which will stimulate the class without exhausting it. The more strenuous localized exercises can follow immediately after this opening, and then the most vigorous exercises of all—the General Activity movements—will come.

Finally the lesson may be concluded by taking some quiet movement before the class breaks off.

The lesson now takes this form:

- | | | |
|------------|---|--------------------------------------|
| 15 minutes | { | Introductory exercises. |
| | | More strenuous localized exercises. |
| 15 minutes | { | Vigorous general activity exercises. |
| | | Final exercises. |

The next task is to expand these subdivisions and fill in the details.

Introductory Exercises.—The object of the introductory group is to warm up the class, to stimulate the boys and to ensure that joints are free and limbs working easily—in fact, to get the body prepared for the hard work which is to follow. If the lesson is of only 30 minutes' duration, 3 or 4 minutes is sufficient to spend on such movements. The group can open with a short burst of running—either formal or free. The boys should then run to their team places and team colours should be put on. When this has been completed, handkerchiefs should be used and a *short* time given to a breathing exercise. The introductory group can conclude with a leg exercise, sometimes of a formal nature such as foot placing, more usually, however, with a rhythmic jump.

More Strenuous Localized Exercises.—In this section of the lesson it should be ensured that the requirements of the first general rule for constructing a lesson are carried out, viz. that all the elements necessary for a well-balanced physical development are included in their due proportions. This may be interpreted, so far as this section of the lesson is concerned, as meaning that the exercises must be selected so as to cover the whole body.

Exercises are classified in groups according to their primary effects, and it is desirable that an exercise should be selected from each group for this section of the lesson. Although it is not absolutely essential to place these groups in a definite order, it is better to do so.

It is easier for the teacher to have a definite sequence to work to, and he is less likely to leave out any important section of the lesson by adopting this method. It is suggested that the order of the groups, or, as it is more generally termed, 'the sequence' of the more formal part of the lesson, should be as follows:

- | | |
|-------------------------|---------------------------------|
| Dorsal Group. | |
| Arm Group. | |
| Balance and Leg Groups. | |
| Abdominal Group. | } These groups can be reversed. |
| Lateral Group. | |

The types of exercises are placed in the various groups as follows:

Dorsal Group.—Arch and head exercises, trunk forward and downward bending exercises.

Arm Group.—Arms bending and stretching exercises, arms swinging and raising exercises, arms flinging and arms circling exercises.

Balance and Leg Group.—Heels raising exercises, knees bending exercises, leg raising exercises, knee raising exercises, lunging exercises, and apparatus exercises.

Abdominal Group.—Back lying exercises, front support exercises, horizontal sitting exercises.

Lateral Trunk Group.—Trunk bending sideways exercises and trunk turning exercises.

Breaks should be used between the various formal exercises as may be considered necessary.

The Vigorous General Activity Exercises.—The structure of the first part of the lesson has now been dealt with, and the next consideration is how best to plan the general activity section. This should contain the more recreative exercises, which make the largest demands for a concentration of energy and a free use of all the bodily powers. There is no set order or sequence in which this group should be planned: its structure is entirely in the hands of the teacher. Speaking in general terms, it may be said that it should contain some type of marching and running, either jumping or vaulting or agility work (perhaps a mixture of these exercises), and a game.

The Final Exercises.—Opinion varies on the value of depleting exercises at the end of a lesson, many holding the view that it is better to allow boys to rest. Whatever the value, or lack of value, from a physical point of view, there can be little doubt that some form of quiet movement at the finish of a lesson has considerable control value. The boys have just finished the most exciting part of the lesson—perhaps a keenly contested team game—and the writer considers that it is excellent training for them to have to run to their team places and control themselves whilst performing some simple movement. A lesson might well be concluded in the following way: Run to team places; use handkerchiefs; a simple well-known leg movement; a short breathing exercise; collect team colours; dismiss.

Progression

It is a characteristic of the Swedish system of gymnastics that, with the exception of the very elementary starting positions, every new exercise is based on one of the same type previously learned. It thus becomes evident that the fundamental movements must be thoroughly well taught if satisfactory progress is to be assured. From a secure foundation progress can be made by developing the basic movements and employing them in fresh combinations and sequences.

As is the case with the lessons in the 1919 syllabus, the first lesson in a new table will consist largely of known exercises, and the new ones will be introduced and developed gradually until the final form of the

table as planned is reached. In addition to making progress with new exercises the teacher should, as occasion demands, also review old movements either in their original form or more probably in fresh combinations.

It thus follows that many of the exercises in the following progressive lists have permanent value throughout the boys' training.

CHAPTER III

Progressive Lists of Exercises and Specimen Tables

Having dealt in some detail with the general structure of the lesson, it now remains to consider the method of selecting the exercises.

In the case of junior schools, little difficulty arises as the teacher has only to follow the tables suggested in the 1919 syllabus, constructing the general activity section of the lesson along the lines already advised.

The textbook which should be followed by the senior schools is the *Reference Book of Gymnastic Training for Boys*, issued by the Board of Education in 1927.¹ This book, however, is compiled for a much more elaborate scheme of work than can at present be embraced by 95 per cent of the senior or central schools. The work is, moreover, based on the supposition that the school has on the staff a teacher specially trained in this subject, with (most probably) a gymnasium and a wide range of equipment at his disposal.

The ordinary teacher in the senior or central school would undoubtedly experience considerable difficulty in sifting the material given in order to arrive at exercises suitable to his requirements. It is therefore proposed to select from this textbook suitable exercises, and in each case to quote the page and number in the *Reference Book of Gymnastic Training for Boys*,¹ so that the teacher may be able to read the description of how the exercise is performed and study the illustration (where given).

The exercises in the following lists have been classified according to type and have been placed, as far as possible, in a progressive order of difficulty. It must be remembered, however, that the ease with which an exercise is performed depends, to some extent, on the build of the performer. Moreover, the strength of a movement varies according to its range and the vigour with which it is performed, this being noticeably so in the case of many of the rhythmic exercises. For ease of reference each exercise has been indexed. On the left-hand side of the page will be found two columns:

- (i) In the first column is given the page in the *Reference Book of Gymnastic Training for Boys* on which the description of

¹ H.M. Stationery Office, Kingsway, London.

the exercise may be found. Although the actual exercise may, in a few cases, not be described, the fundamentals underlying its performance are always given.

- (ii) In the second column is given the number of the exercise on that page.

A few exercises not in the reference book are included: in each case these are self-explanatory.

It will be noticed that certain signs and abbreviations have been employed in the reference book: these may be ignored, as in the following lists both the "starting positions" and the actual exercises themselves are given in full. The name of the starting position, enclosed in brackets, is given first; then the name of the movement to be performed; finally, in brackets, any special directions as to the manner in which the exercise is to be performed and the nature and adjustment of the apparatus to be used. The following lists have been drawn up on the supposition that the teacher will have at his disposal:

5 or more gymnastic benches fitted with hooks.

1 or more mats.

Jumping stand and rope.

Vaulting buck.

Games kit-bag including jumping ropes.

If this apparatus is not available the exercises requiring it must be deleted. The teacher should select appropriate exercises from the lists and fit them into his table on the lines already suggested. Unless the teacher has had definite training in handling boys when using apparatus, he should not employ the vaults and agility movements. There is a definite element of danger in some of these exercises unless the teacher fully understands how to "receive" boys when jumping and vaulting.

In the main, the free standing exercises from the 1919 syllabus should form the basis of the first portion of the lesson during the boys' first two years in the senior school. The exercises in the following lists are intended more for boys from 13 years of age onwards, although some are useful at an earlier stage. The following lists are not intended to be exhaustive, and the teacher may select further exercises from the *Reference Book*.

Introductory Exercises

RHYTHMIC JUMPS

Reference Book.

Page.	Number.	
194	12 (vi)	Astride jumping, turning about after each 4th count.
195	15	(Stand—knees full bend.) Skip jumping.
196	23	(Stand—toe sideways.) Hopping with feet changing.
196	20	Swinging step on the spot: later moving forward.
194	12 (iii)	Astride jumping, moving forward to 8 counts, turning about in jump following each 8th count.

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- 194 12 (iii) Astride jumping, moving forward to 8 counts with arms swinging sideways.
194 12 (vii) Astride jumping with knees bending.
196 20 Swinging step with one arm swinging sideways.
196 24 Hopping with knee raising and opposite arm swinging forward.

FOOT PLACING SIDEWAYS (AND KNEE BENDING)

- 62 7 (Stand.) Foot placing sideways with arms swinging sideways and upwards.
63 10 (Stand—low hips firm.) Foot placing wide sideways.
63 11 (Stand—wide astride—I knee bend—low hips firm.) Rhythmic take off.
63 11 (Stand—wide astride—I knee bend—arms across bend.) Rhythmic take off with arms flinging.
63 11 (Stand—wide astride—I knee bend—arms bend.) Rhythmic take off with arms stretching sideways.

Dorsal Exercises

ARCH AND HEAD

- 91 8 (Stand—astride—fists on thighs.) Head pressing backward.
91 8 (Stand—astride.) Head pressing backward with arms turning outward.
91 8 (Stand—astride—fists on thighs.) Continued head pressing backward.
91 8 (Stand—astride—arms sideways.) Head pressing backward with arms turning.
100 33 (Back lying—arms across bend.) Arch.
100 33 (Back lying—arms sideways.) Arch.

TRUNK BENDING FORWARD AND DOWNWARD

- 95 14 (Long sit—knees raise and open—knees grasp.) Trunk bending downward.
96 19 (Stand—astride—trunk forward—arms downward.) Rhythmic trunk pressing downward to touch floor between legs.
97 24 (Stand—hips firm—trunk forward.) Trunk bending downward to touch floor, trunk stretching forward with hips firm.
97 23 (Stand—astride—hips firm.) Trunk bending forward and downward, stretching forward and upward.
97 25 (b) (Stand—astride—trunk forward—arms downward.) Rhythmic trunk pressing downward to touch floor between legs, followed by hand clasp behind back and trunk stretching forward with arms stretching backward.

Reference Book.

Page.	Number.	
97	24	(Stand—arms across bend—trunk forward.) Trunk bending downward to grasp ankles, trunk stretching forward with arms across bend.
97	24	(Stand—arms sideways—trunk forward.) Trunk bending downward to touch floor, trunk stretching forward with arms raising sideways.
92	9	(Stand—foot forward—arms across bend.) Trunk bending forward.
93	11 (ii)	(Stand—arms bend—trunk forward.) Double arm punching forward.
95	15	(Stand—foot forward.) Trunk bending downward to grasp front ankle.
97	24	(Stand—head rest—trunk forward.) Trunk bending downward to touch floor, trunk stretching forward with head rest.
96	20.	(Stand—wide astride—trunk downward—ankle grasp.) Rhythmic trunk pressing downward.
94	11 (iv)	(Stand—1 arm upward—1 arm backward—trunk forward.) Arms change with swing forward.
98	30	(Kneel sit—arms backward with hands clasp—trunk downward.) Trunk stretching forward with arms stretching backward.
97	25 (b)	(Stand—astride—arms backward with hands clasp—trunk forward.) Trunk bending downward and stretching forward with arms stretching backward.

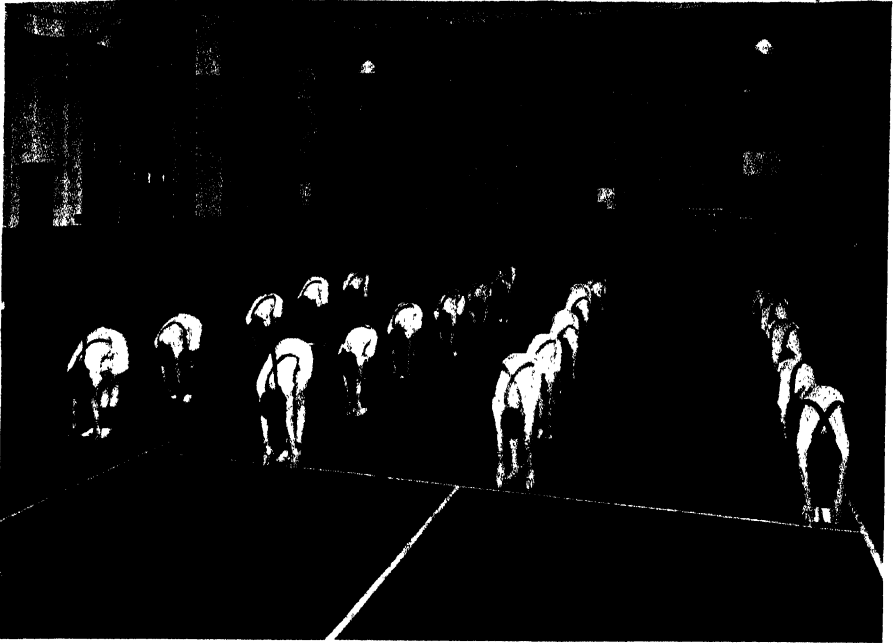
Arm Exercises

ARM POSITIONS

77	6	(Stand.) Arms backward clasp position.
76	2	(Stand.) Low hips firm position.
78	9	(Stand.) Arms midway position.
78	11	(Stand.) Arms crossed position.
79	18	(Stand.) Arms forward bend position.
79	17	(Stand.) Arms across bend, clasp, position.

ARM EXERCISES

79	19	(Stand—arms bend.) Arms stretching midway.
81	22	(Stand—arms bend.) Alternate arm stretching upward and downward.
83	30	(Stand—arms backward.) Arms swinging forward—upward, forward—downward.
83	32	(Stand—1 arm upward—1 arm backward.) Arms changing with a swing forward.



A DORSAL EXERCISE



BALANCE EXERCISES IN TWO MAIN GROUPS

Reference Book.

Page.	Number.	
83	33	(Stand—astride—arms forward bend.) Arms swinging sideways rhythmically. (Later with heels raising.)
86	46	(Stand—arms sideways.) Arms flinging.
86	46	(Stand—arms across bend.) Arms flinging.
85	44	(Stand—astride—fist clenched.) Quick one arm circling backward.
84	34	(Stand—astride—arms forward bend.) Elbow and arms swinging sideways rhythmically.
79	19	(Stand—arms bend.) Slow arms stretching forward and quick arms bend.
Self-explanatory		(Stand.) Arms swinging sideways—upward to clap hands, sideways—downwards to slap legs, three times; followed by arms bending, stretching sideways and swinging downward (the whole combination to a count of six).
Self-explanatory		(Stand.) Arms swinging forward—upward, stretching forward and swinging downward (taken to a count of four).
Self-explanatory		(Stand.) Arms swinging sideways—upward and sideways—downward, three times; followed by arms stretching upward and swinging forward—downward (taken to a count of six).
Self-explanatory		(Stand.) Arms circling backward three times; followed by arms stretching midway and swinging sideways—downward (taken to a count of six).
81	22	(Stand—arms bend.) Alternate arm stretching upward and sideways.
84	35	(Stand—astride—arms crossed.) Arms swinging midway rhythmically.
Self-explanatory		(Stand.) Arms swinging forward—upward, stretching sideways, across bend, stretching forward and swinging downward (taken to a count of six).
84	35	(Stand—astride—arms crossed.) Arms swinging midway with heels raising (taken rhythmically).

Balance and Leg Exercises

GROUND EXERCISES

66	23, 24	(Stand—foot forward—arms bend.) Heels raising with arms stretching upward.
139	21	(Stand—hips firm.) Leg raising backward.
137	15	(Stand—head rest.) Knee raising and leg stretching forward.
69	31	(Stand—heels raise—arms sideways with palms up.) Knee bending with arms raising upward.

Reference Book.

Page. Number.

64	15	(Stand—feet full open—hips firm.) Lunging outward with toe pointing.
139	22	(Stand—leg sideways—hips firm.) Leg carrying forward.
137	15	(Stand—hips firm.) Knee raising and leg stretching backward.
69	31	(Stand—astride—heels raise—arms bend.) Quick knees bending with arms stretching sideways.
65	16	(Stand—feet full open—hips firm.) Lunging outward.
71	37	(Stand—crouch.) Single leg stretching sideways.
139	22	(Stand—leg sideways—hips firm.) Leg carrying backward.
138	19	(Stand—arms sideways with palms up.) Leg raising sideways with arms raising upward.
71	36	(Stand—knees full bend.) Jumping to “stand—astride—heels raise” with arms swinging midway.
67	25	(Stand—heels raise.) Quick heels lowering and raising.
139	22	(Stand.) Leg raising forward, carrying sideways and lowering, with arms raising forward, parting and lowering.
136	13	(Stand—arms upward.) Knee raising.
70	32	(Stand—knee bend—arms bend.) Arms stretching midway.
69	31	(Stand—heels raise—arms bend.) Quick knees bend with arms stretching upward.
138	19	(Stand.) Leg swinging sideways with arms swinging sideways (hold and lower slowly).
71	37	(Stand—crouch.) Legs stretching sideways.

APPARATUS EXERCISES

142	30	(Side stand.) Step up to balance stand; jump down sideways or forward. (Bench.)
143	36	Balance march forward, arms free. (Bench.)
143	36	Balance march backward, arms free. (Bench.)
143	31	(Balance stand.) Knee bending; later knee full bending. (Bench.)
143	32	(Balance stand.) Knee raising. (Bench.)
143	33	(Balance stand.) Turning 90°, later 180°. (Bench.)
143	36	Balance march forward and at mid-bench turn 90° and jump down. (Bench.)
143	36	Balance march forward up rib of sloping bench. (Bench.)
143	36	Balance march down rib of sloping bench. (Bench.)
143	36	Balance march on “see-saw” bench. (Bench.)
144	37	Balance march forward with ankle stretching. (Bench.)
145	39	Balance march forward with dropping on one knee. (Bench.)

Many of the above exercises may be taken later with benches “two high”.

Abdominal Exercises

Reference Book.

Page.	Number.	
151	2	(Back lying—knees raise.) Knees raising to chest.
158	48	(High front support.) Feet placing forward with straight knees. (Bench.)
152	3	(Back lying—knees raise.) Legs raising over the head to touch the floor with the toes.
155	31	(Horizontal sit—knees raise and open—ankles grasp.) Leg stretching.
159	56	(High front support.) Arms bending. (Bench.)
155	33	(Horizontal sit—legs astride.) Trunk bending downward to grasp feet.
158	46	(Stand—crouch.) Alternate leg stretching backward.
152	7	(Back lying—knees raise—arms upward.) Cycling.
159	55	(Front support.) Walk round with feet. (Free form.)
159	54	(Stand—crouch.) Legs throwing backward to "front support" position.
156	34	(Horizontal sit—trunk downward—feet grasp.) Heel lifting with hands.
152	10	(Back lying—neck rest.) Leg raising to 90° with knees bending and stretching.
153	12	(Back lying—arms sideways—fists clenched.) Knees raising, legs stretching to 45° and lowering.
160	59	(Front support.) One leg raising.
159	55	(Front support.) Feet placing astride with a jump.
159	56	(Front support.) Arms bend.

Lateral Exercises

TRUNK TURNING EXERCISES

170	10	(Stand—astride—arms across bend.) Quick trunk turning with arms flinging.
169	7	(Stand—astride—arms sideways—fists clenched.) Quick trunk turning from side to side with alternate arm swinging across.
170	13	(Stand—astride—1 hand hip firm—1 arm crossed.) Quick trunk turning with one arm swinging midway.
169	8	(Horizontal kneel.) One arm swinging sideways with trunk and head turning.
169	9	(Stand—astride—arms downward—trunk forward.) Alternate arm swinging sideways with trunk and head turning.
170	11	(Stand—wide astride—arms across bend—hands clasped.) Rhythmic quick trunk turning from side to side with elbow swinging.

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Page. Number.

- 170 12 (Stand—wide astride—arms forward bend.) Quick trunk turning with one arm flinging.
- 171 15 (Stand—arms bend—trunk turn.) Arms stretching sideways.

TRUNK BENDING EXERCISES

- 175 25 (Stand—astride.) Rhythmic quick trunk bending from side to side.
- { 176, (iii) (Side stand—foot rest.) Trunk bending downward to
177 31 grasp raised ankle. (Bench.)
- 173 21 (Stand—astride.) Trunk bending downward to grasp one ankle and rhythmic trunk pressing downward.
- 174 24 (Stand—astride—arms sideways—fists clenched.) Quick trunk bending from side to side.
- 177 32 (Side stand—foot rest—hips firm.) Trunk bending sideways towards raised foot. (Bench.)
- 177 32 (Side stand—foot rest—arms sideways—fists clenched.) Trunk bending sideways towards raised foot. (Bench.)
- 175 28 (Stand—astride—1 hand hip firm.) Trunk bending sideways and rhythmic pressing.
- 175 27 (Stand—astride—head rest.) Trunk bending sideways with opposite heel raising.

Marching Exercises

- 187 13 Marching forward and changing direction to backward (for a few paces).
- 189 22 Marching with knee raising.
- 190 29 Slow marching on the toes forward and backward.
- 189 24 Marching and halting with a turn to left or right.
- 191 31 Marching sideways, changing to forward.
- 190 28 March backwards.
- 191 33 Marching forward changing to sideways.

Jumping Exercises

- 200 30 Running high jump; later in stream.
- 200 31 Running oblique high jump; later in stream.
- 201 34 Standing long jump.
- 203 40 Combined high and long jump. (Fence and ditch.)
- 203 39 Hop, step, and jump.
- 201 34 As far as you can get in three standing jumps.
- 201 35 Running hurdle jump for length over a marked space (landing on one foot and running on).
- 201 35 Running hurdle jump over low rope.

Reference Book.

Page.	Number.	
201	35	Running hurdle jump in stream.
201	35	Running hurdle jump over two or more ropes with three strides between jumps.
204	43	Running high jump through two ropes: a "window".

Vaulting Exercises

205	45a	Running astride vault. (Low buck lengthways: later increase height of buck.)
205	45a	Running astride vault: "Leap frog".
209	47a	(Side stand.) Face vaults over inclined bench with bent knees. (Inclined bench.)
214	51a	(Stand—grasp.) Through vault to stand on bench; down jump off one foot. (Benches two high, crossways.)
210	47b	(Side stand.) Face vaults over horizontal bench with bent knees. (Bench.)
209	47a	(Side stand.) Face vaults over inclined bench with legs thrown back. (Inclined bench.)
212	49	Running oblique back vault. (Benches two high.)
205	45a	Running astride vault. (Buck crossways.)
210	47b	(Side stand.) Face vaults over horizontal bench with legs thrown back. (Bench.)
214	51	Running through vault to stand on apparatus; down jump off both feet, later with arms swinging forward and upward. (Benches two high crossways.)
211	47	Running face vault. (Benches two high.)
214	51	Running through vault to stand on apparatus and immediately down jump off both feet with arms swinging sideways. (Benches two, later three, high, crossways.)
211	47	Running face vault. (Benches three high, crossways.)
214	51	Running through vault. (Benches two high, crossways.)

It will be noted in the reference book that many of the above vaults are taken using the beam, horse, or box-horse. As these pieces of apparatus may not be available, the benches used "two or three high" have been substituted. A bench "two or three high" means that one bench is placed broad side up with another bench (or two benches), also broad side up, on top of it. Whenever benches are placed on top of each other they must always be held at each end. An inclined bench is fixed as follows: benches are placed "two high" with a third bench on top with the balance rib up. A fourth bench, broad side up, is hooked on to this rib.

Agility Exercises

Ref. Book.

Page. No.

228	1	Forward roll. (Mat.)
228	1	Running forward roll and stand up. (Mat.)
230	4	Introduction to hand spring over back. (Mat.)
228	1	Running forward roll to spring up and run on. (Mat.)
228	2	Backward roll. (Mat.)
231	5	Head standing position against a wall with support. (Mat.)
230	4	Hand spring over back. (Mat.)
228	3	Hand stand against a wall with support. (Mat.)
228	3	Hand stand with support. (Mat.)
231	5	Head stand. (Mat.)
228	3	Hand stand.

Breaks

A "break" is a *short* activity, of a slight nature, which is used between the formal exercises, as occasion demands, to maintain the "swing" of a lesson and to ensure that it is both physically and mentally stimulating. The essence of a break is that it shall not only make all the class move, but shall also make the boys think. Thus breaks should be frequently changed so as to keep them fresh and stimulating. A break, moreover, should not require elaborate teaching or explanation lest this stimulation be lost. It is not proposed to give a list of breaks, for such a list would of necessity be short and the repeated use of these breaks would, in the long run, deprive them of the very qualities they should possess. The best plan is for the teacher to devise his own, bearing in mind the general principles governing the making of a break.

- (i) A break must get as many of the class as possible rapidly on the move.
- (ii) The description of a break should contain all the teaching necessary—elaborate explanation or preparation of apparatus is most undesirable.
- (iii) A considerable number of breaks should be thought out so that they can frequently be changed and thus kept stimulating.

The following is an example of a break:

On the word "Go!" everyone will run clockwise round his own team leader, touch the north and west walls and return to team places in the cross-leg sitting position—"Go!"

Specimen Tables

It is not considered advisable to draw up a definite series of tables; progressive lists of exercises have been provided and, with the aid of these, the teacher should be able to compile his own lesson.

Five specimen tables are given in order to assist the teacher. These

are not progressive and merely represent a specimen of a table for each year the boy is in the senior school.

It will be noticed that in some cases in the Balance Group, and in all cases in the General Activity group, team work has been introduced.

It must be understood, however, that teams should not be put to work at separate team activities of an advanced nature unless such activities are known to the members of the teams and are considered to be reasonably within their ability, and only then provided that the team leaders are competent to take charge of their teams and ensure the safety of their boys.

Thus in the specimen tables, where a leader has been put in charge of an activity, it is assumed that the movement is known to the class. Any new vault or agility which it is desired to teach should be under the direct control of the teacher.

In the specimen tables T = teacher and L = leader. The breaks are printed in italics.

TYPICAL TABLE I

Average age of boys 11+

Introduction.—(i) Running in a large circle, on signal join hands facing inwards and continue with slip step.

(ii) Run to team places and put colours on.

(iii) Use handkerchiefs—breathing.

(iv) Hop on the spot with toe forward, high knee raise and feet change.

Trunk (Dorsal).—(Astride—hands on thighs.) Head pressing backward. (Arms sideways.) Trunk bending forward with hand turning.

Thread the long needle.

Arm.—(Arms forward.) Arms swinging sideways with palms up.

First, team to run to team corners, join hands facing outward and start slip step to the right.

Balance and Leg.—Upward jump with leg swinging sideways.

Wheelbarrow race.

Trunk (Lateral).—(Astride—hips firm—trunk turn.) Arms changing to head rest.

General Activity.—(i) Swinging step moving forward.

(ii) Red team—Forward roll (mat) under T.

Blue team—Standing long jump under L.

Green team—Standing high jump (stand and rope) under L.

Yellow team—Jumping the swinging rope under L.

(The above group activities to be taken without a change over.)

(iii) Two games of Team Passing.

Reds v. Blues. Greens v. Yellows.

Conclusion.—(i) Run to team places—use handkerchief—breathing.

(ii) Collect colours.

(iii) Dismiss with one step forward and a clap of the hands.

TYPICAL TABLE II

Average age of boys 12+

- Introduction.**—(i) Marching in a large circle, break off on signal and see which team is the first to form a circle round their leader.
 (ii) Run to team places and put colours on.
 (iii) Use handkerchiefs—breathing.
 (iv) Astride jump to four, then turn about with a high jump.

Trunk (Dorsal).—(Astride—hands on thighs.) Head pressing backward.

(Arms sideways—trunk forward.) Arms flinging in one movement.
Round partners and round ranks.

Arm.—(Upward bend.) Alternate arm stretching upward and downward rhythmically.

Run once clockwise round your bench and then see which team is the first to balance on the bench.

Balance and Leg.—(Side stand.) Step to balance stand. (One bench rib side up for each team.)

Slide the log (lift and lower slowly).

Trunk (Lateral).—(Astride—arms bend—trunk turn.) Arm stretching sideways.

General Activity.—(i) Counter march and change to march with knee raising.

(ii) Red team—Running forward roll to spring up and run on (mat) under T.

Blue team—Run along a bench and deep jump off the end (bench broad side up) under L.

Green team—Oblique high jump (stand and rope) under L.

Yellow team—Free ball passing practice under L.

(The above group activities to be taken without a change over.)

(iii) Game of 4 Court Dodge Ball—all the teams in the same game.

Conclusion.—(i) Run to team places.

(ii) Use handkerchiefs—breathing.

(iii) (Hips firm.) Heels raising six times.

(iv) Collect colours.

(v) With an upward jump—Dismiss!

TYPICAL TABLE III

Average age of boys 13+

Introduction.—(i) Counter running followed by running in a circle.
 (ii) Run to team places and put colours on.
 (iii) Use handkerchiefs—breathing.
 (iv) (Stand.) Foot placing sideways with arms raising sideways and upward.

Trunk (Dorsal).—(Stand—astride—arms sideways.) Head pressing backward with arms turning.
 (Long sit—knees raise and open—knee grasp.) Trunk bending downward.
(Long sit.) Teams round teams jumping legs.

Arm.—(Stand—arms bend.) Arms stretching midway upward and midway downward.

Balance and Leg.—Two teams. (Stand—one foot forward—arms bend.) Heels raising with arms stretching upward.
 Two teams. Free balance walk forward. (Two benches to each team rib side up.)
Mount benches facing opposite directions and deep jump down.

Trunk (Lateral).—(Stand—feet astride.) Rhythmic trunk bending from side to side.
Slipping step in a deep circle.

Abdominal.—(Lying—knees raise.) Knees raising to the chest.

General Activity.—(i) Marching—running—skip step with high knee raising.
 (ii) Oblique high jump in mass. (One rope for each team.)
 (iii) Team activities involving a change over:
 Red and yellow teams—"Skittle Ball" under L.
 Blue team—Running astride vault (buck) under T.
 Green team—Face vaults over inclined bench with bent knees (inclined bench) under L.

Conclusion.—(i) Clear apparatus and run to team places.
 (ii) Use handkerchiefs—breathing.
 (iii) Collect team colours.
 (iv) With a pace to the right—Dismiss!

TYPICAL TABLE IV

Average age of boys 14+

Introduction.—(i) Marching followed by run to four team circles and slip steps in these circles.

(ii) Run to team places and put colours on.

(iii) Use handkerchiefs—breathing.

(iv) (Stand—wide astride—one knee bend—hips firm.) Rhythmic take off.

Trunk (Dorsal).—(Lying—arms across bend.) Arching.

(Stand—one foot forward—arms across bend.) Trunk bending forward.

“ Ball Tag ” used as a break.

Arm.—(Stand—astride—arms forward bend.) Rhythmic swinging of elbows and arms sideways.

Balance and Leg.—Two teams. (Stand—one leg sideways—hips firm.) Leg circling backward.

Two teams. (Balance stand.) Marching forward. (Benches two high.)

Run along benches in stream and deep jump down.

Trunk (Lateral).—(Side stand—one foot rest—hips firm.) Trunk bending sideways to raised foot with rhythmical pressing. (Benches.)

Skip jumping from side to side of a bench and on signal mount in knees bend position.

Abdominal.—(Stand—crouch.) Alternate leg stretching backward.

General Activity.—(i) Slow marching forward and backward on the toes.

(ii) Team activities involving a change over.

Red team—Hand standing in pairs under L.

Blue team—Backward roll (mat) under L.

Green team—Running astride vault (buck lengthways) L.

Yellow team—Through vault to stand and deep jump down (benches three high) under T.

Conclusion.—(i) Clear apparatus and run to team places.

(ii) Use handkerchiefs—breathing.

(iii) Collect team colours.

(iv) (Stand—hips firm.) Heels raising and knee bending.

(v) Dismiss.

TYPICAL TABLE V

Average age of boys 15+ (Central Schools)

Introduction.—(i) Whistle race.

(ii) Run to team places and put on colours.

(iii) Use handkerchiefs—breathing.

(iv) Hopping with knee raising and opposite arm swinging forward.

Trunk (Dorsal).—(Lying—arms sideways.) Arching.

(Stand—astride—arms backward—hands clasped—trunk forward.)
Trunk bending downward and stretching forward with arms stretching backward.

“ *Catch and Pull.*”

Arm.—(Stand—astride—arms crossed.) Arms swinging midway upward with heels raising, taken rhythmically.

Balance and Leg.—Balance march forward on chalk lines and benches with dropping on one knee.

(Chalk line and bench for each team.)

Sideways skip jump over a bench moving forward (in stream).

Abdominal.—(High front support.) Feet placing astride with a jump.
(Benches.)

Trunk (Lateral).—(Stand—arms bend—trunk turn.) Arms stretching sideways.

General Activity.—(i) Marching forward change to sideways.

(ii) Stream event including: six astride jumps on and off a bench, a jump over a rope and moving and balancing a club.

(iii) Team activities involving a change over.

Red team—Running oblique back vault (benches three high) under T.

Blue team—Head stand (mat) under L.

Green team—Jumping through two ropes, L.

Yellow team—Running astride vault (buck crossways) under L.

Conclusion.—(i) Clear apparatus and run to team places.

(ii) (Stand—hips firm.) Foot placing sideways.

(iii) Collect colours.

(iv) Use handkerchiefs—breathing.

(v) With a forward jump—Dismiss!

CHAPTER IV

Team Work

By team work is meant the organization of the class into a certain number of sections which work as groups under their leaders in many of the exercises and games. Before dealing with the method of organizing these teams it is as well to consider some of the many advantages to be gained by this arrangement.

(i) The subdivision of the class into a number of permanent groups makes for mobility and ease of handling. Movements can be carried out much more rapidly and easily.

(ii) The team organization effects a very considerable saving of time in the lesson. Teams may be set to work by themselves at exercises and activities in which only one boy can work at a time. For example, if an "astride vault over a buck" was being taken, and there was no team organization, the class would be lined up, each boy awaiting his turn. Thus if the class was 32 in number a boy would be standing still $\frac{31}{32}$ of his time. If, however, the class is organized in teams, only one group would be taking the vault and the other three groups would be working at some alternative activity. This organization is made clear in each of the specimen tables given on pp. 133 to 137.

(iii) Not only is much time saved by a team organization, but the boys are able to get more practice in the exercises and activities than would be the case if there was no subdivision of the class.

(iv) The lesson can be made more interesting, and a wider variety of exercises can be performed.

(v) It should be clearly understood that only known activities and exercises can be put under the care of team leaders. The teacher is responsible for the group which is learning the new movement, and he thus has the advantage of introducing the exercise or activity to a small group and is thereby enabled to give individual attention to each boy.

(vi) There can be little doubt that in the majority of walks in life a fair measure of competition makes for speedier and more zealous work. This is certainly the case with the physical training lesson, and the keen though friendly rivalry which can be engendered between team and team is all to the good, if wisely controlled. This rivalry adds greatly to the interest of the lesson and increases the standard of efficiency.

These six points may be said to sum up the main practical advantages of team work. It is not, however, only on the practical side that team work is of value. If wisely guided it can make a substantial contribution towards fitting the boy to become a good citizen. As the *Reference Book* says, "not only does team work satisfy the instinct for physical activity, but it furnishes the students with the most intelligible motive for

co-operative and collective effort, and almost of itself brings them to understand that the enjoyment arising from such effort is born of submission to a measure of discipline". Team work, if wisely guided, should teach the boys to accept responsibility, to work loyally under chosen leaders, and to estimate success and failure in terms of their side and not of themselves.

Practical Organization

Composition of Teams.—It will be found that a senior class is best divided into four teams, considerable care being taken to ensure that the teams are as nearly equal from the point of view of physical ability as the teacher can make them. To have badly balanced teams is courting failure, as nothing kills the interest more rapidly than one team always being successful whilst another always fails. If the teacher can so adjust the teams that, when they are playing a competitive game, he himself has no idea which group will win, he will have gone some way towards ensuring success. When the class "falls in" for the lesson each team should form one file. The leader should stand at the head of his file, the remainder being arranged behind him, with the smaller boys in front and the taller behind. The vice-leader can take his position in the rear of his file. Whenever possible there should be approximately three yards between files and a yard and a half between members of a file. The boys should remember their positions and fall in always in the same order. This formation is known as "team places" and is frequently used throughout the first half of the lesson. On occasions it may perhaps be necessary to form special groups for vaulting and agility work owing to the fact that the capabilities of the boys vary very considerably. Each boy should wear his team colour band in the form of a bandolier, passing over one shoulder and under the other arm.

Leaders and Vice-leaders.—A leader and vice-leader should be appointed for each team, and to start with it is usually found desirable for the teacher to make the selection. Later on, however, it may be desired to give the boys some share in the appointments. In this case the following method has been found to work satisfactorily. The teacher draws up a list of some ten or twelve boys, any one of whom he considers would make a satisfactory leader or vice-leader, and the boys are allowed to elect their own leaders and vice-leaders, by vote, from any boy on that list. By this method the boys have some say in the election of their leader, and, having made their selection, must accept the responsibility and abide by their choice. It is useful to make the team leaders wear two colour bands crosswise, as by this means they can be readily distinguished in quick games and activities from the other members of their teams.

A leader cannot be expected to function properly unless he receives some definite training in his duties, which should embrace the commanding and handling of his team, superintending the placing of apparatus, leading in games and ensuring the safety of his team when performing apparatus

exercises. Much valuable training can be given incidentally during the lesson, but this may not prove sufficient. The problem of giving further training may be solved by the formation of leaders' classes. Once or twice a week, as occasion presents, the various leaders meet and receive special instruction in handling a team, controlling an activity, refereeing a game, and "receiving" a student whilst vaulting.

Methods of Introducing Team Work.—It has always been the writer's experience that it is inadvisable to stress, too greatly, the team idea during the first two or three lessons with a new class. These lessons are essentially a period of experiment during which the teacher is finding out the ability of his class, and so adjusting his groups that they are well balanced from a physical point of view. If the ideals of team work are stressed too greatly, a boy at once begins to develop a pride of team, and, if any adjustment to ensure well-balanced teams becomes necessary, quite naturally dislikes being transferred. As soon, however, as the teacher has adjusted his teams to his satisfaction he is in a position to expand his team organization, and there will then be little likelihood of having to change a boy from one team to another.

If promotion is on a yearly basis, the entire class will move up and the same team organization can stand in the new class: it is only in the case of a new class, or a class with a large number of new boys, that the method suggested above will be necessary. As soon as the teams are finally fixed it is advisable to tell the boys what team work means, the practical advantages they will gain from it, and what will be expected from the teams and their leaders. The teams can then be formed, as already suggested, and leaders and vice-leaders appointed. It is essential to give the teams plenty to do right from the beginning: the work may be quite simple, but a start should be made at once. It is sometimes found that after the teacher has had his talk on team work several weeks are spent in further preparations. Naturally the boys begin to lose interest and the great advantages of that first wave of enthusiasm are lost.

For some time the teams will work under the control of the teacher. For instance, each team might be performing a standing high jump over a rope, or a balance walk forward along the rib of a bench—in both these illustrations the same activity is being carried out by the four teams independently, yet they are under the direct command of the teacher. As time goes on the teacher can gradually transfer more and more responsibility to the teams and their leaders, but this must be a very gradual process and must always keep pace with the boys' ability to accept this increased responsibility and to manage for themselves. If complex team arrangements are attempted too soon there is bound to be confusion and waste of time. Team movements must always be carried out quickly, smoothly, and quietly, the boys running to their new positions and spacing themselves correctly as rapidly as possible, thus saving any loss of time. In the early stages the duties of the leaders should be confined to such simple acts as leading their teams from one formation to another,

supervising the placing of the apparatus in simple ways, and keeping the score in inter-team contests and competitions.

Later on, the teacher will give a general order for the placing of apparatus such as: *On the word—"Go!" Red team will place two benches two high, broad side up, in this portion of the hall. Blue team will place the vaulting buck over there and set it at its lowest. Green team will put one mat in that corner. Yellow team will place the jumping stand here and put the rope three feet high. All teams will then fall in, in file, facing their piece of apparatus—"Go!"*

Leaders will be responsible for nominating boys to move the apparatus, will supervise its erection, and see that everything is secure, and will then be responsible for their teams falling in correctly. The leader may then give the commands for each boy to start and the next to make ready. It should be borne in mind, however, that whatever activity is commanded by a leader must, of course, be already familiar to the boys. Leaders should never be given the responsibility of teaching a new exercise, although they may "coach" those already known. It is at this stage that a leader should be specially coached in 'receiving'. The lessons will now contain elementary vaults and agility exercises and it is essential that the leader should be able to ensure the safety of the members of his team. The boys will also have reached an age at which the leaders will be able to take charge of the games already learned. This phase of team work will need very careful watching, and the leader will frequently need the teacher's help and guidance.

Games and competitive events have definite rules which must be obeyed but are frequently disregarded when excitement runs high. It will fall to the leaders to control their teams, to ensure that rules are obeyed and to discountenance anything which savours of unfair play. If members of a team really have the welfare of their team at heart they will support their leader in this respect.

At this period of a boy's life, especially, it is essential that the competing unit should be the team and not the individual, and this characteristic is common to all the more highly organized team games played with boys over 11 years of age. In these games the effort of every member of the team is necessary if the team is to be successful—a weak link, or a slack player, at any point may let the side down. Interest is maintained and zest added to the game if a record of points scored is kept. The teacher can award, at his discretion, 3 points for the first team, 2 points for the second, 1 point for the third, and nothing for the fourth. The points can be totalled up at the end of a stated period—say a month or a term—and the winning team over this period will thus be arrived at. Points should never be cheaply won and should be given with discretion. If boys really have to strive hard to obtain points their value will be enhanced. Whilst the allocation of points serves a useful purpose it should never become an obsession: in this, as in most things, a proper sense of proportion should be observed.

CHAPTER V

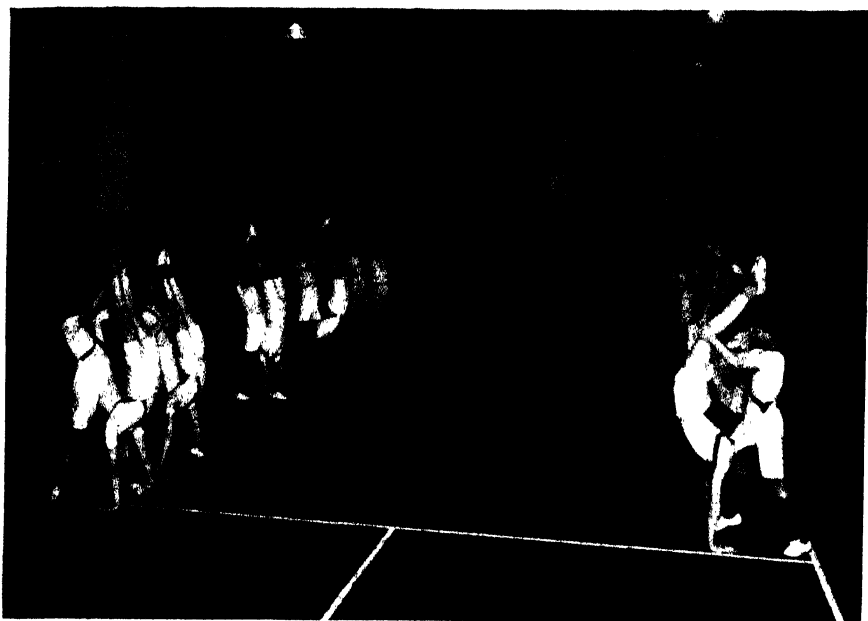
Games

Amongst the many physical benefits which games confer, the following are a few of the more important:

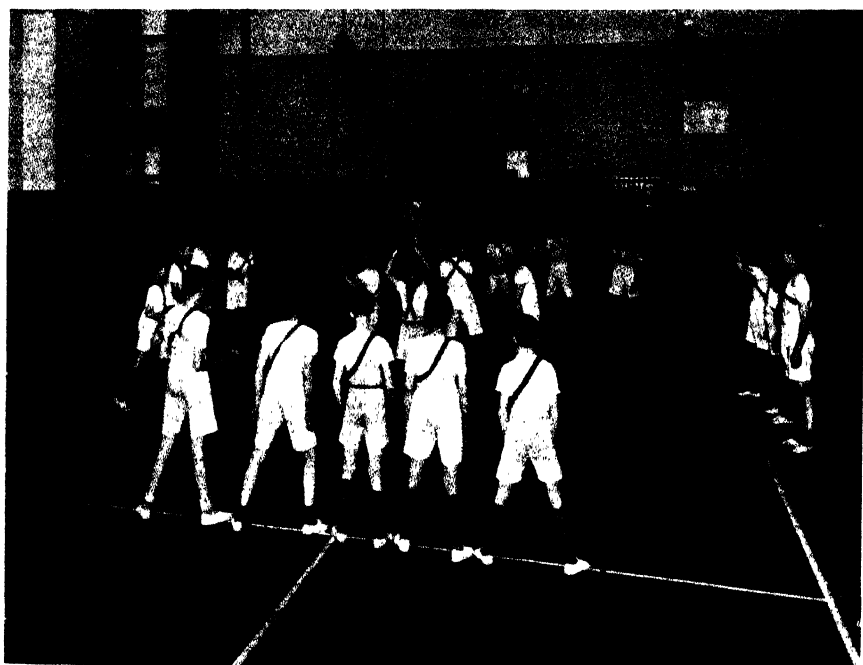
- (i) Games give massive exercise. All the big muscle groups are called into play and the body is thoroughly exercised. For this reason games have a marked effect on the proper functioning of the various bodily systems.
- (ii) Most games call for a high degree of co-ordination, and situations arise which demand quick thought and immediate action.
- (iii) The speed with which games should be played makes for agility and quick movement.
- (iv) The necessity for controlled movement is ever present in games. This is not easy to acquire, as will be seen from the vigorous, but frequently futile, efforts of the novice. It is only by dint of practice that a boy learns what muscle groups to use and when to use them.

The inclusion of games from a physical point of view only would be fully justified; they have, however, a most important function to perform from the educational standpoint. As the *Handbook of Suggestions for Teaching* says, "The educational value of games lies in cultivating a spirit of true and chivalrous sportsmanship." A boy should learn to be modest in victory and cheerful in defeat. He may be taught such valuable lessons as self-control, unselfishness, loyalty to his side, and scrupulous fairness; lessons which may have a life-long effect on the boy.

In recent years the physical training lesson has altered considerably, particularly with regard to the general activity section of the lesson, of which games form a most valuable part. The incorporation of games in the lessons was not, however, accompanied by any very clear-cut idea as to why they were included or how they should be employed. The idea seems to prevail that, provided a game is included in the lesson, it does not matter much what the game may be. As a result, games are frequently employed which are quite inappropriate to the age and physique of the boys playing them. Not only should a game be played, but it should be an appropriate game, and, if a proper selection is to be made, the play instincts of boys at various ages should be studied. Without going deeply into this matter it may be stated that a boy passes through three distinct phases, and it is proposed to deal briefly with the chief characteristics of each stage.



HAND STANDING



A GAME OF SPRY

First Stage

Up to the age of eight, a boy's play is essentially individual, his imagination is vivid and his powers of imitation pronounced. His interest is not held for very long and he always expects to reach "the exciting part" quickly. These characteristics should give a definite lead when selecting his games. Attempts to introduce elaborate group or team work will fail.

A game in which the idea prevails of "let's play at being . . ." or "do something like . . ." is well adapted to the boy's needs. Games at this age should reach their interesting stage rapidly, and a long period of preparatory work before "the point" is reached will prove undesirable. Finally, games at this stage should teach a boy to do things for himself and to think for himself.

Second Stage

From the ages of 8+ to 10 it is found that the games can take a longer period before reaching their climax without any loss of interest. The boy can better appreciate the possibilities of the game than was formerly the case, and choose, from several different openings, the one he considers the best. He now likes to take risks, and the spirit of "daring" his opponents is prevalent. At about nine years of age the hunting instinct begins to develop, and the boys like to band themselves together into groups to hunt and chase others. Games of chase will be found particularly suitable at this period.

Third Stage

When a boy reaches the age of 10+ many of the characteristics already described decline and others take their place. The essentially individual nature of the first stage almost entirely passes, whilst interest in the more simple chase games declines. A closer organization of groups now takes place into what is known as team play. It is unnecessary to discuss the advantages and characteristics of team work as these have already been dealt with (pp. 138 to 141).

There are, broadly speaking, three groups of team games:

Group i.—The game which is played in a fixed formation and in which the competitors are not, in the majority of cases, pitted against active opponents. They work against a standard of skill or distance or speed set by their opponents. All types of relay races, sprints, &c., belong to this group.

Group ii.—The more highly organized team game in which no definite formation has to be maintained, the players as a rule being confined to a court. In these games a boy is actually pitted against an active opponent. Games such as "Team Passing" and "Skittle Ball" belong to this group.

Group iii.—Field games which in the main need a large area of ground

if they are to be played effectively. These games are of a more advanced form than those in group (ii) and are technically more difficult.

It is with the games falling under (i) and (ii) that the main interest lies for the moment, as a separate section under the heading of "Organized Games" deals with group (iii) on p. 146.

It is now proposed to give lists of suitable games under the various headings. In each case the name of the book, author, and publisher is given so that the descriptions of the various games may be found easily. In the main the games of stages 1, 2, and selected games from stage 3 are suitable for use in junior schools, whilst certain games from stage 2 and the majority of games in stage 3 may be used in senior and central schools. It should, however, be realized that a few of the more elementary games have value in later years. For instance, a vigorous chase game on a cold day would be a suitable selection for a class of older boys. The converse of this principle does not hold good.

Stage 1.

The following games will be found in *Suggestions in Regard to Games*¹ on the pages stated.

Pop Goes the Weasel, p. 16.	First to pick up Balls, p. 34.
Musical Circles, p. 17.	Bogey Ball, p. 35.
Fire on the Mountain, p. 18.	Black Peter, p. 35.

The following games will be found in *Games for Playground, Home, School, and Gymnasium*² by J. H. Bancroft.

Black Tom, p. 54.	Midnight, p. 133.
Flowers and the Wind, p. 87.	Shadow Tag, p. 173.
Follow the Leader, p. 89.	Tom Tiddler's Ground, p. 197.
Hill Dill, p. 105.	Hunting, p. 267.
Lame Fox and Chickens, p. 124.	

Stage 2.

The following games will be found in *Suggestions in Regard to Games*.¹

Circle Race, p. 20	Hands Joined Tag, p. 38.
Poison, p. 27.	Crust and Crumbs, p. 52.
Free and Caught, p. 38.	Chinese Wall, p. 55.

The following games will be found in *Games for Playground, Home, School, and Gymnasium*,² by J. H. Bancroft.

Cross Tag, p. 75.	Stealing Sticks, p. 188.
Home Tag, p. 106.	Stoop Tag, p. 190.
Pebble Chase, p. 145.	Ball Chase, p. 324.

¹ Published by H.M. Stationery Office.

² Macmillan

The following games will be found in *Games Worth Playing*,¹ by MacCuaig & Clark.

- | | |
|---------------------------------|--------------------------|
| Skinning the Snake, p. 11. | Catch your Tail, p. 16. |
| Bull in the Ring, p. 12. | King of the Ring, p. 18. |
| The Hunter and his Dogs, p. 13. | Throw it and Run, p. 21. |
| Jockeys and Horses, p. 14. | |

Stage 3.

GROUP I GAMES

The following games will be found in *Suggestions in Regard to Games*.²

- | | |
|----------------------------------|---|
| Line Tug of War, p. 22. | Saddle the Nag, p. 32. |
| Four Corner Tug, p. 23. | Running Circle Catch, p. 53. |
| Over and Under Leap Frog, p. 27. | (Play in four groups, one for each team.) |

The following games will be found in *Games Worth Playing*,¹ by MacCuaig & Clark.

- | | |
|-------------------------------|-----------------------|
| Tunnel Relay, p. 27. | Tower Ball, p. 52. |
| Donkey Relay, p. 28. | Dodge Ball, p. 53. |
| Circle Bouncing Relay, p. 32. | Moving Target, p. 62. |

The following games will be found in the *London County Council Syllabus of Physical Training for Men*.³

- | | |
|------------------------------|-----------------------------|
| Straddle Relay, p. 177. | Throw and Run Spry, p. 181. |
| Jumping Stick Relay, p. 178. | Double Spry, p. 181. |
| Wheel Relay, p. 178. | Circle Chase Ball, p. 182. |
| Throw and Sit, p. 180. | Court Dodge Ball, p. 183. |
| Zig-Zag Spry, p. 180. | Free Dodge Ball, p. 183. |

GROUP II GAMES

The following games will be found in *Suggestions in Regard to Games*.²

- | | |
|----------------------|--------------------|
| Captain Ball, p. 28. | Stool Ball, p. 48. |
| Rounders, p. 45. | Hand Ball, p. 50. |

The following games will be found in *Games Worth Playing*,¹ by MacCuaig & Clark.

- | | |
|----------------------------|------------------------------|
| Team Passing, p. 69. | Post Ball, p. 89. |
| Court Team Passing, p. 71. | Nine Court Net Ball, p. 94. |
| Scrimmage Ball, p. 78. | Circular Pillar Ball, p. 96. |
| Skittle Ball, p. 83. | Rugby Touch, p. 113. |
| Basket Ball, p. 102. | |

¹ Longmans, Green & Co.
VOL. IV.

² H.M. Stationery Office.

³ P. S. King & Son, Ltd.
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Organized Games

In some quarters the idea has grown up that organized games for boys consist merely of football, cricket, and occasionally hockey. This attitude may, perhaps, be traced to the tradition that surrounds these games, and to the fact that the public schools play little else. What may be quite excellent for the public schools with their large playing fields and their schemes of daily compulsory games, is not necessarily best suited to the needs of junior, senior, and central schools. It is quite common for public schools to have 20 or more acres for 350-400 boys. The senior school of similar strength is fortunate if it is able to obtain six pitches a week, with a total playing capacity of 132 boys. This fact brings us up against the great principle which should govern all organized games, viz. that they must be planned and arranged so that every boy gets an equal share of the play. If possible every fit boy should get a game at least once a week.

It is far too frequently found that such facilities as may exist are devoted to the boys who show promise of becoming good footballers or cricketers. Surely this is an entirely incorrect approach. The able exponent is just the type of boy who, by hook or crook, will obtain his games somehow. It is with the indifferent performer, the boy who is apt to be "games shy", that the main problem lies. By all means cater for the keen lads, but not at the expense of the others. Each boy, whether he be good, bad, or indifferent, must have an equal share in the play. How should this principle be applied to a senior school of 350 boys, when there is only a limited area of playing field available *in addition to the school playground*? These last words are put in italics because there is far too great a tendency to overlook the value of the school playground. First of all, consider the area available, and then decide whether a rather more comprehensive games programme than is afforded by football and cricket alone, cannot be drawn up—a programme which embraces several other excellent team games which require less space than our national games. It is suggested that the programme might be planned as follows:

WINTER.	SUMMER.
Football. Definite football practices. Rugby touch. Basket ball. Skittle ball.	Cricket. Definite cricket practices. Stool ball. Rounders. Circular pillar ball.

It is now proposed to work out in some detail the general organization suggested, and then definite points with regard to the coaching of these games will be dealt with.

Let it be supposed that the school is a senior school with a roll of 350 boys organized in nine classes. Six pitches only are available in addition to the school playground. The organization is such that five

classes play games on a Monday afternoon and the remaining four classes on a Thursday afternoon. On each occasion three pitches and the school playground are available.

WINTER SEASON

Monday afternoon programme

Nature of Games.	Space Required.	Boys Employed.
Football.	1 pitch.	22
Three games rugby touch.	$\frac{1}{2}$ football pitch each.	48
Two games skittle ball.	{ equivalent of one foot-	32
One game basket ball.	{ ball pitch.	18

In addition to the period actually spent on the playing field, time is inevitably taken up in travelling to and from the ground. The classes which stay in the playground do not lose this time, and thus two relays of games can be taken.

1st playground period.

Two games of Basket Ball employing 20 boys in each game, making a total of 40 boys for the period.

2nd playground period.

Repetition of first period, employing 40 boys.

With this arrangement 200 boys have played a game during the course of the afternoon, and a similar programme of work on the Thursday afternoon would make ample provision for the remaining 150 boys.

SUMMER SEASON

Monday afternoon programme.

Nature of Game.	Space Required.	Boys Employed.
Cricket.	1 pitch.	22
Rounders.	$\frac{1}{2}$ cricket pitch.	20
Stool ball.	$\frac{1}{2}$ cricket pitch.	22
5 sets bowling practice.	{ equivalent of one cricket	40
2 sets batting practice.	{ pitch.	20
Stool ball.	1st playground period.	20
Circular pillar ball.	1st playground period.	18
Stool ball.	2nd playground period.	20
Circular pillar ball.	2nd playground period.	18
		Total 200

A similar programme on Thursday afternoon would ensure that the remaining 150 boys received their game. In all cases considerable care must be taken to ensure that the games are changed round in such a way that every boy has an equal share of each type of game or practice.

The statement is often made that boys do not care for games like rounders and basket ball as much as for cricket and football. This, perhaps, may be the case, and were it possible to give every boy cricket and football each week, the other team games might not be so necessary. The alternative which has to be faced, however, is the employment of the minor team games in conjunction with a limited amount of football and cricket, in such a way that all can play, or, alternatively, providing football and cricket for only a small proportion of the boys. There are, furthermore, three considerations to be borne in mind in regard to these minor team games.

(i) There are an appreciable number of boys who, whilst positively disliking football and cricket, will nevertheless derive much pleasure and benefit from games such as rounders and stool ball.

(ii) The minor team games are extremely useful for training boys for our more difficult national games. The skill acquired in handling a ball in a game like rugby touch is of the greatest value later when teaching rugby football. The ability to hit and field a ball in stool ball has a direct bearing on a boy's skill in cricket.

(iii) Our national games of football and cricket are full of difficult technique and require a teacher to coach them who is himself thoroughly acquainted with the game. It is frequently found that not more than two or three members of a staff have this technical knowledge. The minor team games, which are not technically so difficult, can well be put in charge of a teacher who has had little opportunity of playing football and cricket himself, thus reserving the experienced coaching units for the more difficult games.

The scheme of organization which has already been outlined is based on the fact that approximately half the school plays games on one afternoon in the week, and the remainder on another afternoon. Whilst this practice is becoming increasingly common, there is still a large proportion of schools who release their classes one at a time throughout the week for their games. These classes may either visit a playing field with one or in some cases two pitches available, or may take their games in the playground. The following specimen organization is suggested to meet such cases:

WINTER SEASON

All class open with a football phase practice.

Followed by: 22 boys, football; remainder, rugby touch.

SUMMER SEASON

All class open with a cricket-practice.

Followed by: 22 boys, cricket; remainder, stool ball.¹

¹ Those waiting to bat should practise batting and bowling in pairs.

Details have already been given of the publications in which descriptions of the games referred to above may be found.

Football and Cricket.—Spending the whole of the organized games period playing an actual game of football or cricket is not enough. If real skill is to be developed it is essential that the various phases of the game should be regularly practised. Football may be said to consist of a combination of kicking, passing, dribbling, shooting, heading, &c.; whilst cricket is made up of batting, bowling, fielding, catching, throwing, &c. It is to these definite phases of the game that special attention should be given. The undermentioned coaching activities will be found in the book *Stepping Stones to Cricket, Football, and Hockey*.¹

FOOTBALL

Phase of the Game.	Name of Practice.	Page.
Passing.	Football court team passing.	47
Dribbling.	{ Dribbling relay in pairs.	31
	{ Progressive circular dribbling relay.	43
Shooting.	Circular goal shooting.	35
Heading.	A heading game.	29

CRICKET

Phase of the Game.	Name of Practice.	Page.
Fielding.	{ Hop ball.	3
	{ Scatter ball.	11
Bowling.	Mass bowling.	7
Batting and general practice.	A complete cricket practice.	17

Both in the case of football and cricket a part of every organized games period might well be devoted to some of these practices, whilst the remainder of the time might be given to a practice game of football or cricket plus one of the so-called minor team games. Particular care should be taken to ensure that the various points which have received special "coaching" during the phase practices are put into effect in the full game. Matches should not be played during organized games periods. A match is played in order to arrive at a result, and thus the best bowlers and batsmen tend to dominate the play and coaching obviously becomes impossible. The organized games period is intended to give all—not a selected eleven—an opportunity to get exercise, to acquire greater skill at the game and to develop some of those excellent habits which come from playing a game in the right spirit.

¹ Longmans, Green & Co., Ltd.

Inter-School Competitions

Under this heading it is proposed to deal with a few of the many points which arise in connexion with inter-school football and cricket matches, athletic sports, and swimming galas: in fact, with those activities which are invariably carried on out of school hours, and which are organized by local associations of teachers on a voluntary basis. There is considerable diversity of opinion on the value of a selected team competing against another school, many holding the view that intensive competition of this sort is not good for the boys competing. It is the writer's opinion that a school team, if properly selected, can be a great asset to a school. The value appears to be threefold.

- (i) The physical good which the game or sport does.
- (ii) The incentive which a school team provides to all the boys: they strive for the honour of representing the school.
- (iii) The bearing and conduct of a team can do much to set an example to others and to build up a healthy school tradition.

The value of a school team largely depends on the method by which it is selected. If the majority of the boys in school do not play games, run, or swim, and only a limited number of the most promising are selected and coached intensively in order to produce a good side, then there is little to be said for such an organization. A team which may be very skilled and prove successful in inter-school competitions can be produced in this manner, but it usually means that these boys monopolize the few facilities available, obtain far more play than is their just share, and receive all the coaching. Their skill has been acquired at the expense of the remaining 90 per cent of the school. On the other hand the school team may be the outcome of sound organization, in which case it is all to the good. The first point is to ensure that every boy plays as frequently as possible. The next stage is to organize inter-house matches—not merely on the basis of the best team of one house playing the best team of another, but in such a way that every boy in the house can play. A school with approximately 360 boys on the roll will probably be organized on the basis of four houses, each about 90 strong. A house of 90 could certainly select seven or possibly eight teams for football and cricket and a corresponding number of teams for athletics and swimming. Thus the seventh house teams can play each other in exactly the same way as the first house teams are used to doing. By this means every fit boy in the school has been catered for. From this wealth of material a school eleven can be selected, and the special coaching which it will, and should, receive will not then be at the expense of the less skilled. A school team which has been selected in this manner is a real asset to the school, and both staff and scholars may justly be proud of its prowess.

HYGIENE

BY

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HYGIENE

CHAPTER I

Introduction

The term "Hygiene" is a very wide one, including all those departments of knowledge or practice which relate to the maintenance of health; it is therefore necessary to limit and define the scope of hygiene as applied to our particular purpose. The most important criterion for the selection of information and activities in the health education curriculum should be its usefulness.

As soon as the child is capable of understanding it, knowledge of hygiene must be imparted in a form which can be re-expressed by the child; the children should be taught why they should do certain things and so form good habits; why a habit is bad; and, as evidence that he understands the reasons, should be able to reproduce the sense of the instruction given him in such a form as will suffice to show that he does understand it. We must start at a sufficiently low level; we must enforce the performance before telling the children why; many children indeed may require to have it impressed upon them that the repeated performance of an action will in time lead to the formation of a good or bad habit. When satisfaction is associated with an act it is more likely to be repeated than if it brings annoyance. The way in which health education is carried on has therefore a direct influence upon its success. If satisfaction results from health habit performance, the habit is more likely to become established than if performing the habit is a disagreeable task. Herein lies the value of making the path easy and meriting reward, even if the reward only take the form of praise. The isolated "good habits" taught to the young child must later be gradually enlarged upon and justified; the teaching will then be directed to the general theme of the correct mode of living. We must, however, not despair if we find that our efforts to supply the theoretical reason for a correct action do not appear to succeed; the *science* of hygiene is not for young children. We have gone a long way if we make them believe that behind all these injunctions as to correct conduct there is a reason formed on good authority.

That hygiene lessons can be successfully given in public elementary

schools is shown by the experience in Hornsey, where in 1904 a syllabus of instruction in hygiene was issued by the Education Committee. More recently the London County Council, feeling that in the absence of a definite place in the school syllabus, the importance of the subject hygiene had been insufficiently recognized, especially in the upper classes of boys' departments, agreed upon the following points, after consulting the headmasters and the headmistresses:

- (1) Hygiene should be taught according to a prepared syllabus.
- (2) Hygiene should be taken all through the school course.
- (3) Between 11 and 14 years of age actual lessons in hygiene should be shown on the time-table.¹
- (4) The work done in the school and in the domestic economy centre should be co-ordinated.

The Nursery School

The advent of the Nursery School, and of the Babies' Class in Infant Departments, has enabled this organized health education to begin at an earlier age in a small proportion of the child population. As to whether children should be taken away from the mothers' care at this early age there is hardly any question; if all mothers were able to train these very young children, there would be no need for such schools or classes, but at present many are not able to look after their young children properly—it may be from poverty and the necessity of their going out to work, or it may be from lack of training and instruction.

By the time a child leaves the Nursery School he should be able to wash himself, to clean his teeth, to keep his nose clean, to feed himself properly, and to make known his wants as to relief of the bowel and the bladder in good time; and, when he goes to relieve himself, to do so in a cleanly fashion, not soiling the seat or floor of the closet and not forgetting to pull the plug after him.

CHAPTER II

The Teaching of Hygiene

Up to 10–11 years.

With the entrance of the child into school begins its organized health education, to be continued throughout the entire school life. At the age of five years, to the child who is commencing school life the school is everything. He is then ready to accept and obey any or all instructions of

¹ It is suggested that this should be either a fortnightly lesson or should amount in total to a minimum of twenty hours during the year. A weekly lesson in hygiene for three years is often given; instruction at domestic centres occupies one session a week for at least two years.

his teacher; the parents are very sympathetic, and the authority of the teacher is at its highest. Then is the time to require cleanliness of person and clothing, the wiping of boots on the mats before coming into school, tidiness, the orderly hanging up of hats and coats in the cloakroom, the possession of a satisfactory handkerchief and its adequate use, the habit of covering the nose and mouth when sneezing or coughing, the checking of spitting if necessary, the keeping of the fingers away from the mouth, nose, and ears, the use of the tooth brush, the keeping clean of school books and papers, the personal possession of necessary school materials, the keeping of pens and pencils out of the mouth, and the insistence on the proper use of the water closet and the proper use of toilet paper afterwards.

During the first three years of school life the teaching must be didactic; the child should be told to do things or not to do things; it is useless to give any reasoned explanation to him why he should carry out the teacher's orders.

The Board of Education point out that "in dealing with minor delinquencies in hygiene, a sense of proportion and good humour should be observed, and special care should be taken not to blame the child for conditions or upbringing for which it is not responsible. The singling out of children for reproof, the drawing of unfavourable comparison with other children, the public questioning of children as to their habit or custom at home, call for friendliness, discretion, and good understanding."

Children in the lowest classes in school must be taught in very concrete terms, with picture and with illustrative examples. Health readers are probably first useful in Standard IV; some would restrict their use till Standard V is reached. A word of warning is often necessary: the teacher should not try to cover too much ground; one or two topics in a lesson are quite enough at a time. Obviously these readers must be written in simple language if such very young children are to understand them; the limitations of vocabulary in the case of young children are by no means generally realized. They should contain nothing which could in any way encourage the study of ill-health: "In all forms of health education it is important to avoid undue self-consciousness on the part of the child or introducing to its mind medical or morbid ideas. It is the child's prerogative to live the life of joyous impulse, to be forgetful or careless of itself; it would be a misfortune if health education were to result in the child continually thinking about its body or in losing its spontaneity or naturalness."¹

How is this to be avoided? By bringing before the children the pleasure, beauty, and usefulness of health in ways that will mould and strengthen their idea as to its desirability; the teacher should deal with the advantages of good health rather than on the disadvantages of ill health. An example of what not to do is the teaching formerly given in schools upon alcohol;

¹ *Handbook of Suggestions on Health Education.*

this dwelt far too much on the diseased conditions in the body set up by excessive consumption of alcohol. Every now and again in the course of instruction medical matters must be brought before the children, but the optimistic side should always be given. From the time of entrance into school up till the age of 10 or 11 years, it is agreed generally that no formal lessons in hygiene should be given; towards the end of this period informal talks are not out of place, but until then the teacher's energy is best used in practical habit training, five to ten minutes a day being enough for the purpose.

Junior Red Cross

Although a good deal has been done in schools to inculcate healthy habits, a new method of approach may be suggested. Some teachers find the Junior Red Cross methods of assistance useful to them. The Junior Red Cross is a branch of the British Red Cross Society; it is composed of "links" which can be formed in both infant and senior departments.

In one infant department the mother of every child who wishes to join is given a card on which are the "Health Laws"; the parent is told that she is expected to co-operate in their observance. On this card are seven fundamental rules of hygiene: (1) Wash the hands before meals. (2) Brush the teeth and hair night and morning. (3) Breathe through your nose. (4) Windows open night and day. (5) Play in the open air as much as you can. (6) Early to bed, ten hours' sleep, and early to rise. (7) Wash all over with warm water and soap as often as you can. To become a member the child has to pass the cleanliness test made by the school nurse—clean hands, nails short and clean and not bitten, hair clean and free from any trace of vermin; the child must have its own handkerchief and toothbrush, and be clean and tidy generally. When this condition has been maintained for a month, a badge is presented, of which the children are very proud; their names are also put on a card hung up in the classroom. Twice a day the class mistress examines the children for cleanliness of hands, nails, necks, knees, boots and shoes, asks if teeth have been cleaned night and morning; any child found wanting in these respects has the badge removed and a red dot placed after its name on the enrolment card. Handkerchief drill is taken every morning by the headmistress at an assembly in the hall at ten o'clock, and the nose properly cleared; after blowing into their handkerchiefs five times the children do breathing exercises for five minutes; the opportunity is taken of making a general inspection as to cleanliness. From time to time the headmistress makes a more detailed personal inspection, noting the child's apparent condition of health. If the child looks tired, inquiries follow as to its bedtime hour, whether windows are kept open at night, &c., and if necessary, the parent is sent for and advised. At the close of each year the secretary of the Junior Red Cross Section attends the school and presents certificates to the children who have obeyed the rules and have not had their badges removed during that time.

The Health Game.—Health education can be made attractive; health can even become the object of a keen emulation. The Junior Red Cross advocates the playing of the Health Game—a competition embodying the application of a number of fundamental health rules which the children undertake to follow as faithfully as possible. A card, giving the rules to be observed and containing a number of columns corresponding to the thirty-one days of the month, is given to each child, who each day puts a cross against the rules he has practised. At the end of the month the child with the highest number of marks is declared the winner. A suitable set of health rules for this purpose is given below; it has been modified from one given by Dr. W. A. Daley and Miss Viney.

JUNIOR RED CROSS HEALTH RULES

	Marks.
1. Slept with windows open	1
2. Was in bed hours	1
(12 hours at 6 years.)	
(11 hours at 9 years.)	
(10 hours at 11 years.)	
3. Washed all over this morning or washed thoroughly before going to bed	1
4. Cleaned teeth after breakfast	1
5. Washed hands before each meal; cleaned finger nails to-day	2
6. Washed hands after using closet	2
7. Had bowels open to-day	1
8. Carried a handkerchief, using it when coughing or sneezing to protect others	1
9. Tried to sit and stand straight all day	1
10. Did not put fingers or pencil in mouth	1
11. Ate my food slowly	1
12. Did not eat between meals	2
13. Took one hour's exercise out of doors to-day	2
14. Did deep breathing for three minutes this morning	2
15. Tried to avoid accidents to myself and others; looked both ways before crossing the roads	1
16. Blew nose properly before going to bed; put clothes to air at night	1
17. Did one minute's deep breathing before going to bed	1
18. Had hot bath to-night (at least once a week)	2
19. Washed hair (to be done as often as parent decides)	4
	<hr/>
	28

Such a competition would in all probability prove very useful in the case of very young children, but it should not be maintained for too long—a week at the beginning, middle, and end of term are usually sufficient.

There are, of course, different ways of playing the Health Game. One half of the class can play against the other; the children take it in turn to read aloud the rules of the Health Game each morning, and, after each rule is read, each child who has deserved it raises his hand. The show of hands is recorded for each team in the "Health Register", and added up at the end of the month, when the name of the winning group is announced.

This daily practice of the rules of the Health Game causes the elementary health principles to take a permanent hold on the child's mind. The Health Game is usually carried on under the supervision of the teacher, and the co-operation of the parents is also one of the conditions of its success, for it is they who are in the best position to observe whether or not certain of the rules are being observed (sleeping with the windows open, brushing the teeth morning and night). In this way, modern ideas on hygiene receive a certain helpful advertisement in the family circle.

Health Club

Another way of interesting slightly older children in health questions is to create health clubs. These clubs are organized by the children themselves as much as possible; they appoint a committee to distribute the various duties and to ensure the observance of the club rules. One child, for example, is detailed for a week to inspect the cleanliness of hands, another takes charge of the ventilation of the classroom, a third sees to the cleanliness of the lavatories. These "health officers" are changed at the end of a stated period so that each member of the class has a turn.¹

A simpler form of the same idea is the appointment of a health monitor or prefect; a child in each classroom containing scholars seven years old and over is constituted the health monitor or prefect for the week. It is his or her duty to see that the classroom is well flushed with fresh air upon every available opportunity, and that any ventilator is open; to chart the temperature every day; to report any accumulation of dirt or uncleanliness, and to prevent paper and rubbish being littered about the school buildings and playground. It is the duty of the health monitor to report absence of soap or of clean towels in the lavatories, or of paper in the closets, also the misuse of either of these or of the urinals.

It is easier to make instruction in health "grip" in the case of girls than of boys. Domestic science is the obvious channel for much of the teaching of girls, and it has the advantage that the teaching can rest always on a practical basis and be associated with some activity on the part of the pupil. In addition to being taught the elements of mothercraft at the school, girls should have the advantage of seeing the work carried on at maternity and child welfare centres and day nurseries.

Probably the nearest equivalent in the case of the boy is the utilization by the school of the principles and practice of the Boy Scout movement. Some teachers may prefer to lay greater emphasis on instruction, practical and theoretical, in First Aid. It is very valuable to a school for one member

¹ See the *Teachers' Guide* issued by the Canadian Red Cross, Toronto.

of the staff to be able to give first-aid to the children when injured. Much can also be taught about health in connexion with nature study. There is no doubt too that "the interest of the boys can be especially captured through handwork."¹

Experience has shown that boys take an interest in community hygiene, such, for example, as the source, purification, and distribution of the water-supply; the production, distribution, and care of milk; the collection and disposal of household refuse; the disposal of sewage; theoretical instruction should be combined with visits to show the boys the actual practice. Possibly on a vacation school journey an opportunity could be made of visiting a source of water-supply and a waterworks.

Health Guide

In the health education of both older girls and boys, the Junior Red Cross affords useful help. In one girls' school, in addition to the small "Health Laws" card, a larger and more detailed card called the "Health Guide" is distributed: it deals with cleanliness, necessity of fresh air, need of sunlight, exercise, rest, prevention of infection, proper posture, and general physical fitness of mind and body, and explains the reasons why the "health laws" should be obeyed.

The badges are liable to summary removal without refund of purchase money should the holder through fault of her own fail to satisfy the conditions of membership, or "come to grief" at the periodical examinations for cleanliness made by the school nurse, but they may be returned when the cause of removal has been remedied and the delinquent's condition is satisfactory for one month. In some schools badges are not issued, but the names of the members are entered on a special card hung in each classroom.

A variant at the twice-daily inspections by the class mistress is the use of a special book, for each child, for marks under the headings, Teeth, Hair, Neck, Ears, Hands, Nails, Boots, Handkerchief. Those who present unsatisfactory totals at the end of the week are reported to the headmistress and are liable to lose their badges. The headmistress also from time to time summons the whole or part of the school to the hall and conducts a "surprise" inspection.

Much the same arrangements have been carried out in boys' departments. Here the badges tend to be mislaid, lost or stolen, and the decorated roll hung up in the classroom is generally substituted. Hygiene prefects appointed for each class are expected to see to the hygiene arrangements of their class, such as issuing the "Health Laws" cards, attending to the roll, and seeing that hands and faces are washed when necessary. In one school the headmaster carries out inspections twice daily himself; these inspections are of a very informal but effective nature. He stands at the top of the stairs each morning and afternoon and, as the school assembles, each boy on entering has to file past him. Any boy presenting

¹ C. W. Hutt, *The Hygiene of School Life*.

dirty hands, face, knees, unbrushed hair, dirty boots, or who is in any way untidy or dirty is noted and an explanation asked. Should this prove satisfactory he is sent to "clean up"; if not, he is duly warned and, if this does not suffice, further steps are taken. An ample supply of soap is always available in the lavatories so that no excuse can be made for failure to wash.

Strict attention is paid to carriage and position in class, and thus any tendency to faulty posture, whether due to any physical defect or to mere habit, is quickly noted, corrected, and if necessary brought to the notice of the school doctor. The importance of obtaining as much fresh air as possible is fully stressed. Organized games are indulged in seriously, and talks on health and fresh air are given by the local medical officer of health.

The international character of the Junior Red Cross movement carries with it an additional advantage: it can be made to provide an interest for the geography lessons. Under the Junior Red Cross correspondence scheme, correspondence with "links" in other countries and exchange of specimens of work and handicraft can be arranged.¹

A child is born with tendencies to form certain habits rather than others; he will in the ordinary course of events form habits which make for satisfaction at the moment. Unfortunately many of the acts which give immediate satisfaction are "unhealthy" either for the individual or for society, and we are forced to make calls upon other motives, some of which are not very high. In general, appeals to the avoidance of pain and danger of injury and subsequent pain (if you do so-and-so, you will suffer), to self-praise (if you do so-and-so you will have beautiful teeth, rosy cheeks, &c.), to rivalry (if you do so-and-so you will have stronger muscles than this or that person) are most effective. This last appeal can easily be overdone, and is used most constructively when the child advances from the idea of excelling his playfellows to the idea of excelling his own past standard, of beating his own record, or better still, scoring an athletic triumph for his school. Appeals to kindness are also effective (if you do so-and-so you will cause the death or illness of another person and therefore you should refrain). It is part of the teacher's work to replace the somewhat negative appeal to avoidance of pain by the more positive appeals, such as enjoyment of the increased efficiency and well-being that accompany good health, desire for increased social usefulness, &c.

Here help is given by the Junior Red Cross, which does not look upon health as an end in itself but as a means to an end. It says to the child: "Enjoy good health, not merely because this is essential to your own happiness, but chiefly because it is indispensable for the health and happiness of others. The health of society is dependent upon the health of the individual. The point is brought out clearly by the Rev. Eric Y. Tilley in his booklet for Boy Scouts on "The Healthy Man Badge".

¹ For other assistance with school work see the *Teachers' Guide* issued by the Canadian Red Cross Society, Toronto, Canada (Miss Jean Browne, Director, Junior Red Cross).

Training in games is not an end in itself, but only a means to an end; the end of training is a healthy useful life.

Several valuable adjuncts to verbal teaching are available. A copy of health rules should be hung in every classroom; a suitable set is the following:

HEALTH RULES

1. Wash your hands before and your teeth after meals.
2. Don't hurry over your meals; sit down quietly to them.
3. Eat everything mother gives you for meals; crusts, porridge, fat, greens, lettuces.
4. Don't forget your weekly hot bath.
5. Open the top of your bedroom window at night.
6. Get all the fresh air you can.
7. Join the Boy Scouts or Girl Guides; learn to swim.
8. Use your own handkerchief; don't chew pens or pencils.
9. Take care of your boots; grease them once a week in wet weather.
10. Growing girls and boys want plenty of sleep.

In Holborn these have been printed on a book-mark and distributed to children.

Use can be made of the notice board. Any valuable health items from the newspapers or suitable picture can be put up.

There is no doubt of the value of pictorial teaching; health posters should be displayed in all schools. They should, however, be carefully selected. It will often be found better for the children to make their own health posters. Lantern slides dealing with hygiene are available; a few schools have managed to obtain relatively inexpensive forms of epidiascopes.

Rhymes and action songs are available for the younger children—the Junior Red Cross have already published *The Messengers of Health*, *The Microbe*, and *How to Grow*, and the National Baby Week Council "H-E-A-L-T-H". Older children should get up health plays and perform them for the benefit of the school. These will make a more lasting impression on actors and audience than would a textbook.

Mention must be made of the possibility of utilizing Health Week and National Baby Week for the health instruction of school children. Every year the Royal Sanitary Institute holds an essay competition as a part of their Health Week programme; in Holborn the school children have either written similar essays or answered simple examination papers set by the Health Department, and the best pupils have been rewarded by prizes given by the Mayor. Some local programmes include addresses on health to school children and the showing of health films at cinemas; then is the most appropriate time for health concerts, plays, and pageants.

It will be noted that in the syllabuses, specimens of which are given on

page 171, is included teaching on the work of the school nurse, the school medical officer, and the school dentist. Every possible opportunity should be taken of explaining what each of these is doing or trying to do, to preserve, maintain, or improve the health of the school child.

The school medical officer at the school medical inspection will make a point of talking to the mother about the health of the child even about the teeth if no other defect be found or of commending the parent on some particular point, even the cleanliness of the child, if such a commendation were tactful. The teacher can often prompt the school medical officer about the children; for instance, if the child is an athlete he can be told that exercise is good for the health, that he should not overdo it, and that he must get plenty of sleep.

Sex Hygiene

The difficult question of the teaching of sex hygiene is of considerable importance. A paragraph in the Final Report of the Royal Commission on Venereal Diseases regarding instruction of children and adolescents in matters concerning sex, together with their safeguarding from possible dangers, says: "Careful attention should be given in the Training Colleges to the preparation of all those who enter the teaching profession to deal with these subjects, and we trust that the best means of giving such information will be considered by those who are responsible for their institutions." The moral as well as the biological aspects should be emphasized. In the report of the School Hygiene Committee of the Education Reform Council (of which the writer was a member), the teaching of sex hygiene in class in schools is not advocated. "More harm than good is likely to accrue from frequent direction of the attention to the primitive aims of the sex instinct. It is better to indicate clean habits, moral conduct, and self-respect by practice and example, and to give children a wide interest in athletics, art, literature, music, and the natural sciences so that they may not in adolescence depend on sex interests for enjoyment. The indirect influence of early training in botany and nature study helps to purify such knowledge of the facts of reproduction as are often acquired at a very early age by children of the poorer classes. A scientific study of the fertilization of plants facilitates sex instruction which should be given privately at adolescence. The person who should give the instruction is the parent of the right type, but for various reasons this duty falls from time to time upon the schoolmaster or schoolmistress.

"Such instruction should have for aim (1) establishment of balance in emotional life; (2) the development of self-control; (3) conservation of sex-energy; (4) prevention of sin through ignorance. Absolute ignorance never, or hardly ever, exists; but failure to understand the deep seriousness of the matter has been responsible for much (harm) in early adolescence."

In Hornsey it was felt that to authorize all teachers to give instruction of this nature would be a mistake. A printed letter was consequently

addressed to head teachers authorizing them to deal with this aspect of hygiene as they thought necessary or desirable.

Menstruation.—It is of the utmost importance that girls should be taught to look upon menstruation as a natural process and not as an illness. The menstrual period, with its attendant discomforts, should interfere as little as possible with the daily routine. In cases where a girl feels too ill during the monthly period to carry on her usual occupation a doctor should be consulted. All ailments associated with the menstrual period are more easily remedied in the initial stages. During the actual period energetic games and violent gymnastics should be discontinued, but other forms of exercise are beneficial as they stimulate the blood flow and prevent crampy pains. Warm baths should be taken throughout the period unless the flow is profuse. Scrupulous cleanliness is absolutely necessary. There should be a daily action of the bowels as at other times.

CHAPTER III

Hygiene and other School Subjects

In the United States of America great emphasis has been placed upon the incorporation of health teaching into the various other school subjects and activities. If this utilization of the appropriate material in other subjects is deliberately planned and successfully supervised, the need for special periods devoted to health teaching will be minimized. The method has been followed in this country; in Hornsey the teachers are advised that the lessons on hygiene should be given in relation to those on other subjects.

In Germany stress is laid on the need for hygiene lessons, as well as the incidental introduction of the subject as a red line running through the whole of the school curriculum. Proper methods of breathing can be taught in connexion with *singing*, proper use of the muscles, i.e. the proper balance between rest and exercise, in connexion with *physical exercises*. Teaching on the circulation and respiration is made of supreme interest if taken with a popular subject like *life saving* and the practice of Schäfer's artificial respiration.¹

The teaching of other school subjects will often be found to grip more easily by the introduction of human interest; teachers will find that *English*, *arithmetic*, and *geography* afford opportunities for teaching the customs and habits of different countries and races; for a study of the composition and the sources of foodstuffs; of the nature of clothing materials and their relative advantages and disadvantages; of the place of sugar in diet and the sources of fat; of food values in relation to cost; of the cost of a proper diet for a day; of the preparation, working, serving, and eating

¹ See the handbook of the Royal Life Saving Society.

of food; of the association of climate with food, with clothing, and with housing. Reference can be made to the health problems arising from the position and climate of certain countries. Further, most of the lessons on the laws of health will be found suitable for exercises in composition; dictation can often deal with matters of health. Scattered throughout English poetry is much beautiful verse which can with advantage be taught.

In *scripture* lessons the teacher will often find himself dealing with health matters: many of the Mosaic laws were health laws; references to the need for cleanliness and the practice of cleanliness often appear in the Bible.

In *arithmetic* children may be given simple problems involving the cost and choice of food; they can calculate the percentage of their gain or loss of weight, the number of hours of sleep required by a given number of boys at different ages (the hours necessary at each age being given), the death-rate attributable to certain diseases, the advantages derived from the institution of preventive measures resulting in the diminution of public relief expenditure. In the top classes of some schools at least the preparation of simple graphs dealing with vital statistics should be possible: this provides a means of making public health problems a reality to the pupils.

In the *history* lessons reference can be made to the unhygienic practices of our forefathers. The minor ones included the accumulation of rushes on the floor, the wearing of long trailing skirts, and the more serious were the plagues and epidemics arising from lack of hygiene, a notable one being the Black Death. On the positive side of health use can also be made of the lives of the great scientists such as Jenner, Pasteur, and Lister, and of the history of other great achievements in health; the health conditions generally of the Middle Ages can be contrasted with those of to-day. The influence of health and disease on races and nations can be taught; much is to be learnt from the health education of the Greek and Roman child, and from the Greek ideal of manly strength and beauty, and the simplicity of early Roman life.

During the *drawing* lessons the elder children especially can be asked to illustrate fundamental facts about hygiene, e.g. the value of milk and of fresh air. Poster competitions have been organized with great success between members of the Junior Red Cross of the same country. The children are able to make things for their health plays. A device many teachers have found useful is the making, by the children, of a health book filled with pictures illustrating health habits, essays, and even a health alphabet. In *modelling*, hygienic grocers' shops can be made; the building of a doll's house affords many opportunities for teaching lessons about open windows, clean kitchens, and ideal sanitation.

During the *needlework* lessons girls should repair their own clothing, and whenever possible make garments which, at the same time, are hygienic and avoid being freakish. All dolls' clothing made should be in accordance with the dictates of hygiene.

In *manual training* classes, the boys can make articles for the equipment of the school baths, wash-rooms, playgrounds, including a first-aid cabinet and its equipment. *Gardening* can be utilized; the growing of vegetables and fruit awakens the pupils' interest in the food value of their garden produce; a lesson can be given in the importance of including these in their diet.

This incidental study of health problems, and the calling of the attention of the children to these questions, is of extraordinary value to children; it brings home to them the reality of health work. The knowledge is acquired more easily by its frequent repetition in varying situations than by a single reference to it in a classroom. Any instruction in elementary science should be connected with the hygiene syllabus. Many of the lessons on hygiene may well be illustrated by simple forms of experiment. In the case of girls, lessons on the laws of health should lead up to the more advanced instruction which will be given in the course on household management. Care should be taken that into any instruction given in elementary science, is woven the idea of the safeguarding of health and life.

The Board of Education consider, however, that whether the course of health instruction given be labelled hygiene or included with other subjects, a definite range of instruction to be covered during each term should be prepared and mapped out for a given group of children.

Although much of the useful part of health training has been given in schools in the past, what is yet required is to spread this health training to every school without exception and to introduce a certain amount of explanatory instruction. We want systematic and interesting study and practice in hygiene included as a definite subject every week in the school time-table. In many girls' schools very little alteration will be required; the hour a week devoted to science in girls' schools is distributed more or less equally among nature study, simple physiology, hygiene, first-aid, and mothercraft, which are all generally regarded as science. Also at the domestic economy centres infant care is a subject of instruction, and a good deal of practical hygiene teaching takes place there.

CHAPTER IV

The Boy Scout Movement and the Teaching of Hygiene

In the upper classes of boys' schools the "science" time is largely devoted to simple chemistry and physics, and consequently there is but little teaching of theoretical hygiene. Here the teacher can find help from the Boy Scout movement. Although some of the boys in certain schools,

probably a large proportion, are prevented by poverty from joining a troop, the teacher can always make use of the spirit and methods of the Boy Scout movement. Any of the boys who are Scouts will have a very precise knowledge of the requirements. Obviously the teacher himself must have an equally precise knowledge, or he will risk losing the respect of such boys. For these reasons I have set out in some detail the scope of the health teaching associated with the Boy Scout (and Girl Guide) movement. The Scout is told: "Your duty as a Scout is to be healthy so far as you can possibly be. A Scout keeps himself clean in body and mind, pure in thought and action. Have nothing to do with filthy talk or questionable conversation." The Scout must Be Prepared at any time to save life or to help injured persons. The authorities of the Boy Scout movement make the boy realize that he is doing something to preserve his own health. "Read the following notes and act up to them, and you will find they will help you to obtain one of the greatest gifts there are, a gift which money cannot buy." The newly-joined tenderfoot is told: "We want to teach you to be physically, mentally, and morally strong enough to face life's dangers and temptations, to be self-reliant, and able to fend for yourself wherever you may be, and above all, to help others whenever you can."

After at least one month from having passed the tenderfoot tests and taken the oath, the tenderfoot may go up for the second-class tests. To pass these he must know the general rules of health as given in *Scouting for Boys* and have an elementary knowledge of first-aid.

The first-aid required is to be able to deal with certain simple accidents; know how to clean a wound and apply a clean dressing; have a knowledge of the triangular bandage and how to apply it to different parts of the body. The Scout is also required to walk a mile in twelve minutes as near as possible (i.e. at Scouts' pace). After he has passed his tenderfoot and second-class tests he is invested as a Scout. To become a first-class Scout he must pass several proficiency tests.

A first-class Scout can become a King's Scout by passing four of the following proficiency tests (of which the Pathfinder or Coast Watchman is compulsory): Ambulance, Cyclist, Fireman, Horseman, Interpreter, Marksman, Pathfinder, Public Health Man, Signaller, Rescuer, Pilot, Coast Watchman. When over 17½ years of age the Scout becomes a Rover.

The health instruction given often has the advantage of being immediately applicable; the marching, walking, and "hiking" often give rise to minor foot troubles, and accordingly excellent advice as to the care of the feet will be found in the *Boy Scout's Note Book and Diary*. The boys are told not to forget their toothbrush when they go camping and cycling—a pure glycerine soap does for washing, shaving, and the teeth. Among the Golden Rules for Campers we find: "Wash all over when you get up, your hands after going into the latrines and before each meal, and your feet after a long tramp."

Moderation is advised in bathing—"one bathe a day is enough for

all of us and if before breakfast too much for some. Do not wear steel-black camp finger nails; this takes the gilt off the appearance of the otherwise smart scout. See to it that your cooking utensils, knives, forks, &c., and especially your kitchen cloths are really clean. Sleeping tents are *not* dining-rooms. Serve your meals and eat them decently. Scouts do not pig it. Broken glass and jagged tins are a danger; bury them deep. The Scoutmaster has got iodine for cuts and scratches."

If the tents are closed up all night the fug by the morning is obvious. In the handbook for the Healthy Man Badge, scouts are told about the ventilation of tents: it is explained to them that the amount of air needed every hour by a person is 3000 c. ft. and that the ordinary bell tent that only contains 719 c. ft. of air when empty is not enough for one boy for fifteen minutes—"so you can imagine what the air is like when about ten boys sleep there with the door tightly laced up". They are told that "the ventilation holes at the top of the tent are not nearly sufficient and that the air you might get from under the brailing is cold and damp. The only thing to do is to see that the door is left open at night no matter what the weather; it is better to risk the rain getting in than to keep the air out." The step from this to open windows at night in the bedrooms is obvious.

The teaching of health to younger boys, 8 years old and onward, Wolf Cubs, is given in a very acceptable form in *The Wolf Cub's Handbook*.

CHAPTER V

The Girl Guide Movement and the Teaching of Hygiene

Teachers in girls' schools will find a knowledge of this movement useful; it has among its objects the promotion of physical development and making girls capable of keeping good homes and of bringing up good children. The method of training is to give the girls pursuits which appeal to them, such as games and recreative exercises which lead them on to learn for themselves many useful crafts. Girls of 8 years old may join as Brownies; they can become second- and first-class Brownies. For promotion, tests must be passed in physical health and service as well as in intelligence and handicraft. The tests in physical health, besides knowledge of hygiene, ensure a certain degree of physical strength and skill; the service tests include First Aid. To pass the physical health test the Brownie has to know how to and why she should keep her nails and her teeth clean, why her nails should be cut, and why she should breathe through the nose. She has also to perform certain physical tests—bowl a hoop or hop round a figure of eight course; throw a ball ten yards with the right hand and then

with the left; throw a ball so that a girl ten yards away catches four times out of six. The service test is to lay a table for two at dinner. To become a first-class Brownie similar tests must be passed: the physical health test relates to physical achievement; the service test includes binding up a cut finger or grazed knee. When a girl has become a first-class Brownie she can obtain sixteen proficiency badges; for the thrift badge (to be renewed annually) she must *inter alia* show a record from the head of the troop (Brown Owl) that she has kept her uniform neat and tidy. Before a Brownie can obtain any badge relating to physical health she must promise: "I will do my best always to keep myself clean in body and thought and to play fair".

The badges include those for an Athlete, the standards being less difficult for Brownies of 10 to 12, a swimming badge, and one for a team player (hockey, basket ball or other team for three months). Before she can receive a service badge, a Brownie must promise: "I will do my best to help other people before myself"; for the First Aider's badge, she must be able to bandage a hand in such a way as to stop bleeding and to make the wound as aseptic as possible; and know how to "clean up" and treat a graze. She must know the treatment for sprains and how to apply a bandage to a sprained ankle, to put on the "large arm" sling, to stop bleeding from the nose, to extinguish clothes on fire, to treat minor burns and scalds, insect stings and bites, and bruises.

Girl Guides must be over the age of 11; for a month at least a guide is a tenderfoot; after passing the tenderfoot tests, she becomes a second-class Guide, when as regards health she is required to show good general carriage while walking and running (or at least has made a real effort to improve), to run a mile at Scout's pace or skip 100 times without a break. Under service she must be able to treat simple cuts and to stop bleeding (with pad and bandage on the wound only), and know how to deal with choking; to be able to remove grit from the eye and to bandage a sprained ankle. She must know the six rules of health (fresh air, cleanliness, exercise, food, rest, clothing). To qualify as a first-class Guide she must hold the Cook, Needlewoman, and Child Nurse handicraft badges; as regards health she must be fit enough to walk two miles in half an hour (Scouts' pace if necessary) and arrive in good condition and must be able to swim fifty yards.¹ Under service she must hold the Ambulance or Sick Nurse badge, renewed every other year, and is required to know how to deal with: shock, asphyxiation (artificial respiration), fire or ice accident, unconsciousness from accident, fits and fainting.

A handbook is published, *Hints on Girl Guide Badges*, which deals with all proficiency and other badge tests; among those of importance in this connexion are the Homemaker, for which the child must bring a certificate from her parents stating that she has been tidy, thorough, obedient and helpful in the house; the Child Nurse—the Guide must show a practical knowledge of how children from 2 to 5 years should be

¹ *The Girl Guides, Rules, Policy, and Organization*, p. 40.

clothed by day and night, in winter and summer, fed (and the necessary cooking), kept clean in person and clothing, kept in healthy surroundings, given rest and exercise, kept happy and good through self-control and occupation. The Cook, Domestic Service, and Needlewoman's badges all have a bearing on hygiene. The badges relating to physical development and strength all make for health; the Athlete, the Dancer, and Folk Dancer, and the Swimmer badges should not be too difficult for a public elementary schoolgirl to obtain. For the Health badge the Guide must show a thorough knowledge of the six rules of health and understand their practical application to herself and be able to explain them to a patrol. She must know the importance of keeping the lungs, skin, teeth, digestion, and pelvic organs and hair in good order, also the dangers of unhealthy diet, intemperance, wet feet, breathing through the mouth, stooping, irregular habits, reading in a bad light, and excess in any form; she must realize the importance of a clean house and know the dangers of germs, mice, flies, insects, &c.

In the group of badges, "Service for Others", are the Ambulance and Sick Nurse badges, both of which have to be renewed biennially.

For these badges it is urged that wherever possible Guides should attend the lectures and examinations arranged for juniors by the St. John's Ambulance Association, the St. Andrew Ambulance Association, and the British Red Cross Society.

The badge for Fire Brigade includes fire prevention, fire extinction, and rescue work, and is somewhat comprehensive and advanced, going considerably beyond the measures required to deal with fire at school. When over 18 the girls are eligible for enrolment in a Ranger Company, where the work required for the badges is of course more advanced.

CHAPTER VI

The Teacher of Hygiene and Training

Obviously it must be the class teacher in the Infant Department who will see to the training of the children in health habits; when the child goes into the higher departments the proper person to continue this training will be the class teacher. When the time comes for class instruction in hygiene it is still the class teacher who should give the instruction; a subject of fundamental importance cannot be left to a single member of the staff to teach; there will necessarily be no specialist teaching of hygiene. It has been suggested that the physical training teacher should take a large part in such teaching, but in point of fact not all schools are provided with physical training teachers. Although in some schools the teaching is imparted by a head teacher or a permanent

member of the staff having special qualifications such as a B.Sc. degree, the handing over of this subject to a special teacher is apt to lead the child to believe that hygiene is a special subject and not part of ordinary everyday life which everyone has to learn and practise; any sensible being can teach as much hygiene as a child of fourteen is required to know. We do not want any children to be "good at hygiene" in the same sense that they are "good at drawing"; we do not want the child to be able to repeat what his teacher has told him in the hygiene lessons so much as for him to translate the teaching into practice.

In the past the training of the teacher in hygiene has been unpractical and unreal; it has been too theoretical. Hygiene is above all an applied science; the branches of science on which hygiene is based have been studied at the expense of the practical application of science to everyday life. The information given to the teacher while training must be on the right lines; the training must be such as will enable him to impart correct information to the children; it must give the future teacher a knowledge of the essentials that can be usefully taught to the children.

In training colleges sufficient attention should be paid to the subjects; the lectures on hygiene should be given by men and women specially qualified for and interested in the work. No efforts should be spared to make students appreciate the importance of the subject, and the great results that may be achieved by its intelligent and unremitting practice in all schools.

Not all teachers, especially those in rural areas, have had the advantage of going to training colleges, and they have not obtained direct teaching in hygiene and guidance in the presentation of the subject to their pupils. An occasional source of difficulty is that students who take a short (one-year) course of training only attend a short (or ten-lecture) course; this is insufficient. Opportunities should be made available by Education Authorities for further study after the completion of training. We have seen that to a great extent the prevention of infant mortality is a matter of education; hence opportunity should be given for all women students who purpose being teachers in senior departments to take a special course of mothercraft and associated hygiene subjects.

London County Council teachers are encouraged to attend evening classes in hygiene. One year is devoted to First Aid, a second year to Home Nursing, and the third year to Health; when a certificate in each of the subjects is obtained a medal is awarded. The possession of such a medal is considered to be an additional qualification when application is made for a senior teachership or a headmistress-ship. There are also evening courses of lectures especially arranged to meet the needs of teachers. But it is the duty of the local health departments to see that every assistance is given to teachers by experts to help them in teaching; in the selection of posters and pictures which clearly and indubitably illustrate and teach a health maxim; by the preparation of booklets and pamphlets for distribution among the children; and by giving oppor-

tunity to teachers and older pupils to observe the various activities of the health department. To inculcate hygiene successfully teachers should carry out what they teach—J. A. Froude says, “In life, the only profitable teaching is by example.” To make the teaching of hygiene effective a school teacher must believe in the truth of what he is teaching.

A teacher must safeguard his or her own health: for his or her own protection the teacher must avoid over-pressure; overwork in the evening interferes with sleep, and if a tram or bus has to be caught to school, loss of sleep often means a hurried breakfast and a bad start for the day. The strain of teaching is undoubtedly considerable; for most teachers five hours a day is enough, and it is doubtful whether evening teaching, even if well paid, is worth the expenditure of energy, with its consequent loss of mental vigour, and it may be of health. No educational work which is felt to be routine or a drudgery should be done out of school hours; the best recreation is a strenuous hobby.

Specimen Syllabus for Boys (in use at St. John the Evangelist Boys' School, Fisher Street, Holborn).

STANDARDS II AND III

1. Cleanliness. General—particular—body—face—hair—hands—ears—teeth.
2. Breathing. Value of pure air—harm of impure air—windows—use of handkerchief—how to breathe properly.
3. Sleep. Importance of sleep—regularity—conditions in bedroom.
4. Eating. Best way to eat food—good habits—clean food—harm of unclean food.
5. Clothing. Tidiness and cleanliness. Warmth.
6. Importance of good health. Safety First—visits of doctor—nurse—dentist.

STANDARDS IV AND V

1. Cleanliness—revision and amplification of previous lessons.
2. Clothing. Character—tidiness—cleanliness.
3. Pure air and things which spoil it. Value of sunlight—breathing—ventilation of rooms.
4. Sleeping. Rules about sleeping—why, when, and how we need sleep—habits of sleeping.
5. Care of eyes. Dangers to eyesight—reading.
6. Care of ears—the one we see—the one we cannot see. Care of teeth—structure—foods harmful to teeth—foods beneficial to teeth—the toothbrush.
7. Physical exercises and games. Their use—how to play—playing the game.

STANDARDS VI AND VII

- A. Cleanliness—revision of work in previous classes.
- B. 1. Our body—its form and functions.
 2. The food needed. Kind—quantity—quality—how and when to eat—cost of food—value of beverages.
 3. Necessity of fresh air. Sunlight—oxygen—need for ventilation.
 4. Cleanliness as basis of healthy living.
 5. Physical exercise and rest. Its value and the necessity of good habits of (1) exercise, (2) rest and sleep.
 6. Clothing. Suitable materials for body—change.
 7. Care of eyes—ears—teeth—eyesight—hearing. Decay of teeth—reasons.
 8. Importance of a healthy mind—connexion between bodily and mental health.
 9. Diseases and how to avoid them. Germs—infection—spread of consumption. Avoiding communicable skin diseases.
 10. Spread of disease by vermin—the house fly—fleas—rats, &c.
 11. Work of Public Health and School Medical Services.

In addition this class will have Science lessons which deal with the work of Jenner, Pasteur, and Lister.

Specimen Syllabus for Girls (in use at Beaumont Park Girls' School, Acton), prepared in connexion with the *Handbook of Suggestions on Health Education*, with additional lessons taken from previous syllabuses, e.g. "Care of Babies", and some lessons to correlate with work at domestic subjects centre.

STANDARD V. Age 11 to 12 years

HOME MANAGEMENT

(*In conjunction with instruction given at domestic subjects centre*)

1. Its importance—need for forethought.
2. How to clean a room—preparation, sweeping, scrubbing, dusting, &c.
3. Fires and care of grates.
4. Washing up, care of sink and bowls.
5. How to lay a table.
6. Washing dishcloths and teacloths.
7. Cleaning metals, brass, copper, tin, silver, and white metal, steel knives.
8. Washing polished wood, furniture polish.
9. Cleaning boots and shoes.
10. Washing brushes, household, toilet, &c.
11. How to lay a fire.

HEALTH EDUCATION

A. Cleanliness of the body.

1. Reasons why personal cleanliness is necessary.
2. How to wash properly; necessity for frequent washing.
3. Care of eyes and ears; need for good light; need for clean spectacles (if worn). Danger of putting hard objects into ears.
4. Care of teeth. How to keep them in good condition—how to clean them. Why the dentist should be visited periodically even when teeth do not ache. Value of certain foods in cleaning teeth. Mouth breathing is harmful to teeth.
5. Care of nails and hair.
6. Necessity for internal as well as external cleanliness.

B. Clothing.

1. Need for simple clothing—washable if possible.
2. Need for tidiness and prompt mending.
3. Need for correct hanging up of garments.
4. Need for proper care and cleaning of boots, shoes.
5. Need for frequent changes of underclothing, keeping clothing and boots dry, &c.

C. Food and eating habits.

1. Adequate nutrition the best protection against illness—ensures a better and quicker recovery from fatigue.
2. Wholesome foods, e.g. butter, eggs, bread (not too new), fresh fruit, green vegetables. Avoidance of faddiness.
3. Importance of regular meals.
4. Importance of clean food.
5. Value of pure water as a drink.
6. Value of properly set meals and correct attention to table manners.

D. Fresh air and sunlight.

1. Value of fresh air—best air out of doors.
2. Value of open windows, day and night.
3. Value of correct breathing and use of handkerchief. Dangers of mouth breathing.

STANDARD VI. Age 12 to 13 years

A. Revise lessons on:

1. Cleanliness.
2. Care of eyes, ears, and teeth.
3. Value of fresh air and sunlight.
4. Value of exercise.
5. Value of rest.

B. Care of babies.

1. The bath and how to give it.
2. Clothing—comparison between present-day and old-fashioned clothing for the baby.
3. Sleep—how the poorest people may improvise a separate cot for the baby.
4. Baby's food—importance of mother's milk—choice and care of bottles—care of milk—need for regular intervals between feeding times.
5. Baby's airing—suitable and unsuitable perambulators.
6. Teeth—special care at teething time.
7. Ailments—evils of soothing mixtures and dummies.
8. The formation of habits—training in matters of cleanliness—power of example.
9. Learning to walk and talk.
10. What to do in case of accidents—prevention of accidents (need for fireguard, &c.).
11. Infantile ailments—how to recognize and treat them, e.g. measles, whooping-cough, scarlet fever, bronchitis, rickets, mumps, croup, &c.

C. The management of young children.

1. Suitable food.
2. Suitable clothing.
3. Value of fresh air and exercise.
4. Formation of good habits.
5. Necessity for sufficient sleep under good conditions.
6. Welfare centres—their work and value.

D. Home care of the invalid.

1. Necessity for cleanliness.
2. Bed-making—changing sheets—ventilating a bedroom.
3. Cooking and serving meals.
4. Application of fomentations—mustard plasters—poultices.
5. Care during convalescence.
6. Simple remedies which should be kept in every home—how and when to apply them.

STANDARD VII. Age 13 to 14 years**A. A simple outline of the form and functions of the body.**

1. Structure.
2. The lungs and circulatory system.
3. The digestive system.
4. The nervous system.
5. The organs of sense.
6. Essentials for nurture. Nutrition—fresh air—cleanliness—exercise—warmth.

B. Nutrition—its importance.

1. Food requirements.
2. What foods to eat and why—how and when to eat—relative costs of foods.
3. Source, distribution, and protection of food supplies.
4. Water, alcohol, and other beverages.

C. Fresh air and sunlight.

1. Fresh air—its value—its physical properties—need for ventilation—temperature of rooms.
2. Process of breathing—importance of correct breathing.
3. Necessity for sunlight—health-giving and healing properties—sunlight cures—artificial sunlight.
4. The smoke nuisance—its evils and prevention.

D. Cleanliness.

1. Basis of all healthful living.
2. Evils of uncleanness—social effects.
3. Cleanliness in the house.

E. Exercise and rest.

1. Value of general exercise.
2. Recreation and the wise use of leisure.
3. Value of formal physical exercises.
4. Good habits of rest and sleep—amount of quiet sleep essential for healthy children.

F. Warmth and clothing.

1. Body heat—how it is created and conserved—how it is lost.
2. Suitable clothing materials—avoidance of tight clothing—advantages of washable clothing—suitable footwear—change of clothing.

G. Care of eyes, ears, and teeth.

1. Need for occasional sight tests—importance of wearing glasses regularly if advised to do so by the doctor.
2. Close relationship between deafness and nose and throat defects—seriousness of discharging ears.
3. Value of good teeth—results of dental decay—privilege and value of dental inspection and treatment.

H. Bodily and mental health.

1. The brain.
2. Value of a healthy outlook.

I. Communicable diseases and how to avoid them—how certain diseases are spread—importance of cleanliness and good sanitary conditions.

J. Landmarks in the history of preventive medicine.

Dr. Jenner and vaccination—inoculation.

Pasteur and his work.

Lister.

Conquest of malaria.

K. Work of Public Health and School Medical Service.

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¹ The National Safety First Association, 119 Victoria Street, London, S.W.1, and especially the Schools Propaganda Committee, will be able to give any help or advice required.

PSYCHOLOGY

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PSYCHOLOGY

CHAPTER I

Introduction

Psychologists attempt to describe, classify, and explain the behaviour and mental activities of conscious beings. From the earliest times people have been interested in the behaviour of others, and have tried to discover what motives influence human beings and the signs by which differences in mental attitude can be detected. The psychologist studies the same facts of human behaviour as are observed by all of us but he attempts to study them scientifically. He tries to observe the facts accurately and makes use of various mechanical aids in order to make his observations more reliable; he frames hypotheses in order to relate these observed facts to their conditions, and makes use of experiment and statistical methods in order to test the validity of his hypotheses; and he endeavours to frame generalizations or theories which will connect the facts in an orderly system.

As long as psychologists attempted to describe "the mind", so long were practical workers justified in believing that the results of such a study could not be of much use to them in their attempts to understand the behaviour of living men and women.

With the adoption of the methods of the natural sciences, psychologists began to discover principles and facts which were found to be of practical value to teachers, doctors, ministers of religion, penologists, and to industrial workers.

Numerous applications of psychological discoveries were made during the Great War, and were of such practical value that people assumed that psychology would be able to solve many of the problems with which the world was faced. Charlatans seized the opportunity, and, trading on human desires for success, pretended to teach anyone how to be successful. Rash claims as to the value of psychology were made by enthusiastic disciples of trained psychologists. The first result was that the market was flooded with books claiming to show how psychology could be applied to the solution of industrial, educational, medical, and

other problems. Disillusionment followed, and there arose a tendency to regard modern psychology as useless.

But, amidst all the chaff, sound, valuable material exists which should be available to workers in the various walks of life. *More valuable work has been done on the behaviour and mental activities of children than in any other sphere*, partly because teachers were able to assist in the carrying out of experiments, partly because the problems seemed simpler, and partly because children were available for investigation in large numbers and under conditions which facilitated the application of scientific methods of inquiry. At the same time it must be admitted that all the results are not equally valuable and that among them are some which are valueless. Without guidance teachers find it difficult to select from the mass of material, with its mathematical tables, its symbols and technical terminology, those parts which are of value to them in their practical work.

An attempt is made in this article to help teachers to select the most valuable of the modern discoveries in psychology and to show how the study of psychology can be of practical assistance to them.

The chief lines of advance in psychological knowledge which are of great educational value include the following:

1. The application of the idea of development, both to individuals and to mental abilities.
2. The study of individual differences.
3. The analysis of intellectual capacities and of the conditions on which their strength at any time depends.
4. The development of methods of estimating the strength of such capacities.
5. The investigations into the part played by emotional life in determining differences of behaviour.
6. The study of normal and abnormal rates of work and of fatigue.

CHAPTER II

The Idea of Development

It is difficult to overestimate the importance of this idea in educational psychology. In the first place psychological investigations have disproved completely the idea that human beings begin life with a clean slate. Each individual begins life with an individual nature which is a variation on the general theme of evolution. Each human being is an organism whose general nature is determined by the fact that he is a child of human parents. What he will become as he increases in age is partly the result of his heredity, partly the result of his environment, and partly the result of the use made of his opportunities. In face of the evidence which has

been slowly accumulated since the researches of Sir Francis Galton, it is impossible to believe that differences in human beings are due entirely to differences in environment. Innate nature determines the general lines of development, and while it determines the lines along which progress can most readily be made, it also sets limits to the effects of education or environmental influences. No ordinary individual questions the truth of this in physical characteristics. The children of white parents are white. A few exceptions merely illustrate the principle discovered by Mendel and confirmed by modern workers on the problem of heredity, that each individual is a sample of the innumerable possibilities which result from the marriage of two individuals with different lines of ancestry.

Obvious illustrations are the two-leggedness of human beings, the observed fact that the children of tall parents are on the average taller than the children of short parents, and the fact that children of the same racial stock are more like one another than they are like children of another stock. A child, for instance, born of Welsh parents in China, is more like Welsh children born in Wales than he is like Chinese children.

Modern researches have confirmed the belief of thinkers of long ago that heredity counts not only in physical but also in mental make-up.

Two practical applications may be mentioned here. Because children are born with different natures we cannot expect them to develop in the same way even if they are given the same kind of training. Different natures will develop differently in the same environment. Secondly, we must realize that it is probable that because children are different in in-born nature they need different kinds of treatment if they are to develop as completely as possible. A horse born of racing stock needs different training from one born of a cart-horse stock if it is to realize the possibilities of its nature.

A fundamental principle underlying these applications is *that development is not mere accretion*. Obviously there must be material for the individual to assimilate, but the same kind of material is used by different individuals in different ways according to their different natures. Teachers are realizing the truth of this principle, but there are many people, some of whom, unfortunately, are in positions of authority, who appear to think that the function of schools is to turn out individuals made to a pattern. It must be admitted that there is some truth at the back of this demand, for life has to be lived in human society, and every individual whose nature permits is required to form certain habitual ways of acting in common situations, and to acquire the conventional ways of expressing his thoughts in order that social life can continue.

The natural thing for teachers to do is to try to harmonize these two demands. With increasing knowledge of how to discover differences in the nature of the individual, teachers are better able to discriminate between those who will barely be able to meet the simplest demands of social life and those whose nature marks them out as probably able to contribute something of value to society. In the past too much attention

was paid to the less able members of the juvenile population in order to bring them up to the level demanded for everyone by those in authority. The result was that the abler children starved and naturally desired to escape from their prisons as quickly as possible. It would not be true to say that a school is not doing its work unless the pupils in it are loth to leave it, though there is more than a grain of truth in the suggestion. Two principles prevent us from accepting it as true; first, that it is the function of the school to aid in the development of its pupils, so that as they reach the stage when other institutions can give more help than can be obtained from the school, they will desire these further opportunities whether given by the technical college, the university, or the world of industry and commerce. The second principle is this, that though there are fairly well-marked stages of development through which normal individuals pass, yet there are abnormal cases which cannot be catered for by ordinary methods in schools. Mention has already been made of feeble-minded children; to these must be added precocious children, brilliant children, morally defective children, and children with marked gifts in special directions. These usually, having found the conditions of an ordinary school unsatisfactory, will be glad to leave it though they may not know the kind of institution which would have satisfied their natures. We shall return to a consideration of the help which psychological training can afford teachers in dealing with such pupils; meanwhile we must consider briefly the characteristics of the various stages of development through which normal children pass.

Though practical teachers and educational theorists are agreed that, because of the differences between the physical and mental characteristics of children at different ages, methods which are successful at one stage need not be successful at another, yet in practice the application of theory has lagged behind knowledge of the chief differences between pupils at different stages of development. Too often it is assumed that methods which are successful in the infant school should be equally successful in the junior school, and that methods which suit children of nine or ten should prove equally satisfactory with pupils of thirteen or fourteen. Unless teachers reconsider and reflect on the educational problems involved in the teaching of pupils in the senior and central schools, there is a grave danger of the perpetuation of methods which may have been suitable for pupils aged ten or eleven. It needs to be remembered that many of the methods in vogue in the top classes of elementary schools, were adopted when the school leaving age was considerably lower than it is to-day, and that they were carried on with the older pupils as the leaving age was raised. The result was that too many pupils in the top classes of elementary schools marked time or were forced to do work which did not seem to them to be worth while; hence to some extent the joy with which they greeted their release from attendance at school.

It is clear that organic development is neither uniform throughout a child's life nor exactly similar from child to child. It has been found

convenient to divide the years from birth to maturity into periods and to describe the chief characteristics of each period, but it is necessary to remember that there is no sudden transition from one period to another, and that some children will show marked signs of transition while others of the same age will scarcely have reached the stage characteristic of the period, while others again may be well advanced into the next period.

The chief divisions are:

1. Babyhood and infancy, lasting from birth to about the age of six.
2. A transition period lasting from about the age of six to that of eight.
3. A formative or stable period from about eight to eleven or twelve.
4. Early and late adolescence, culminating in
5. Maturity.

Until comparatively recently, school life for the majority of the children of this country included only the periods of later infancy and the stable period. Gradually the school leaving age has been raised, so that the early adolescent period must now be included in the school life of our pupils.

Transition Period

A few characteristics of the transition period are given in the next paragraph, but readers who are specially interested in the educational bearings of the psychological study of young children should refer to some of the books specially devoted to that topic. (See the bibliography on p. 224.)

The transition period is one in which most of the child's energies are absorbed in physical growth and in the exercising of the developing physical organism. The muscular system has been brought under a considerable degree of control, but delicate co-ordination of movements has not been achieved in many directions. Attempts to hasten this co-ordination lead to excessive fatigue and nervous strain. Probably many cases of nervous disorder among children at this stage of development are due to unwise efforts on the part of parents and others to hasten accuracy in fine work. Insistence on extreme accuracy in handwork exercises may be instanced as an error which should be avoided by teachers of young children; similarly such children should not be allowed to read books printed in small type or to search pictures for tiny details.

Behaviour during this period is less purely impulsive than during infancy proper, but the ends pursued are in the main closely connected with immediate experience, though knowledge of casual connexions is slowly being acquired in particular cases through practical experience. Abstract ideals of conduct are not effective motives in control of behaviour, though pupils should become aware of them in their practical settings. They undoubtedly tend to imitate the behaviour of those for whom they have affection. In this connexion it is important for teachers to realize that children who are deprived of a happy home life are seriously handicapped.

The Stable Period

This stage (8-12) is one in which the effects of practice in leading to mastery are most noticeable, though the occurrence of plateaux during which no improvement can be observed may lead teachers either to blame pupils for failure to make steady progress or to attribute lack of progress to faulty methods of teaching.

The writer has been surprised to observe how uniformly throughout a well-graded class these stationary periods occur. In handwriting, for example, a period of rapid improvement by almost every member of the class has been followed by one in which practice produces no further observable improvement throughout the class, then followed a period during which further advance is made, and so on. Similar stages can be observed in the mastery of the mechanical operations in arithmetic and, in fact, in the acquisition of most skills.

Teachers will probably find it useful to make records of the progress of their classes in different directions in order to discover the approximate duration of these stages of improvement and consolidation, as the stationary period is named. With this knowledge it would be possible for teachers to arrange for intensive practice at the times when it would be most effective, and for activities in other directions to be stressed during the periods of consolidation. No specific guidance can be given as to the lengths of time, for the two stages vary according to the grade of the pupil, the nature of the skills involved, and methods of teaching. Graphical records will be most useful. A typical graph is given opposite.

In preparing such graphs it would be necessary to make corrections for differences in numbers of pupils working on the different days and for differences in the lengths of time devoted to the activity. A convenient unit should be chosen, say fifty pupils working for thirty minutes, in order to reduce to a minimum the necessary calculations.

With a number of these records available for different subjects and divisions of subjects, teachers would be able to plan the work of their classes more effectively along the lines suggested in the previous paragraph. Individual graphs kept by the pupils themselves are also valuable in many ways.

Physical growth during the stable period is slower than in the periods before and after; in fact compared with them this period might be described as a plateau period during which the physical organism is consolidating the muscular and nervous co-ordinations acquired during the earlier period, ready for the rapid changes consequent on puberty. At the same time it should be noted that during this period children can put forth, without strain, a considerable amount of energy; they either fatigue less easily or recover more quickly. They enjoy work, provided immediate results are obtained; but they are not as a general rule prepared to work willingly for remote ends. It is possibly because of this characteristic that Dalton methods are not entirely satisfactory with pupils under twelve. The writer is inclined to believe that if short assignments

which might be completed in less than an hour could be prepared, some of the value of the Dalton plan could be retained and its defects avoided; but experimental evidence is required.

Though pupils welcome work, it should be noted that they are easily bored with monotony, desiring opportunities for using their developing powers in various directions. Here, again, teachers will find reference to the graphical records mentioned above valuable, especially if class time-tables are used as servants and not as masters. The allocation of a number of periods for individual work may prove useful for extra practice at times when it is most effective, and for separate treatment of individuals

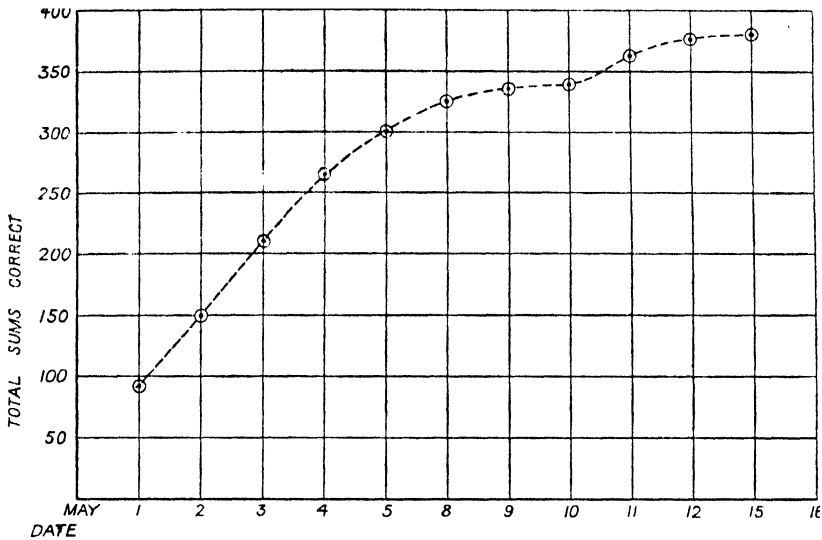


Fig. 1.—Graph showing the number of simple multiplication sums (3-figure) worked by 50 pupils in 30 minutes, each day from May 1st to 15th

whose periods of improvement do not correspond with those of the majority.

In behaviour, children during these years are also in the habit-forming stage. Abstract moral principles are in the main useless as a means of controlling behaviour. Pupils can easily learn by rote the words formulating moral principles, but if their behaviour is moral it is because they have been taught moral habits, not because they have learnt moral principles. During this period they should acquire habits of neatness, cleanliness, industry, honesty in the various activities of everyday life, perseverance, and so on. Parents and teachers often forget how specific such habits are, and assume that because a child is learning to be neat in one direction he should be showing equal neatness in others. Experiments have shown that such transfer depends mainly on methods of training. If in the course of training pupils become aware of a method common to a number of different processes, or of an ideal which may

be realized in a number of different ways, then practice in one process may enable pupils not only to apply the common method in other processes but also to attempt to realize the ideal in other ways. During the stable period, transfer of the effects of training are most probable through the realization of common methods of achieving results, though towards the end of the period some of the pupils will certainly be able to profit from the realization of common ideals. It is, however, during adolescence that the conscious effort to realize ideals in different media is most effective.

Adolescence

Teachers in secondary schools have long been familiar with the problems that arise in connexion with the education of adolescents, though many have failed to solve them. In too many instances in the past, teachers have attempted to teach, let us say, Latin, instead of teaching John Latin.

A knowledge of the chief characteristics of adolescence is necessary for those teachers who wish to take advantage of the possibilities which are being afforded by the reorganization of primary schools.

Physical growth in early adolescence is very rapid, so rapid that there is a distinct danger of over-pressure. New interests appear, and the satisfaction of these consumes much energy; if in addition there are many conflicts between old habits and new ideals, or if there is intensive preparation for examinations, the danger is increased. Work for more remote ends is willingly undertaken by the normal adolescent, who, however, rebels against the drill methods which may have been accepted during the stable period. Among the interests which become strong in most adolescents are included interest in general relations, in social ideals, in religion or philosophy, in biology, and in the behaviour and attitudes of members of the opposite sex. It is during this period that ideals are capable of making strong appeals and of becoming the objects of permanent sentiments influencing the adolescent's behaviour in every direction.

Some writers describe this period as one of storm and stress. Undoubtedly some adolescents pass through a period which merits this title, but many appear to pass through it comparatively easily, though normally there will be some instability in attitude as conflicting ideals are accepted without synthesis. Analysis has shown that in many cases of emotional strain the sufferers have been the victims of unsatisfactory conditions either in the earlier periods or during adolescence. Teachers are advised to read the careful studies made by Dr. Burt, of two hundred juvenile delinquents.¹

Sometimes there is a sudden emotional change brought about by the acceptance of an ideal or the awakening of springs of conduct hitherto dormant, but the writer believes that such changes as "conversion" or catastrophic love affairs are exceptions rather than the rule. The change of attitude towards the universe is none the less real because it is not

¹ C. Burt, *The Young Delinquent*. See also pp. 212-216.

signalized by marked emotional outbursts, nor is the growth of tender emotion towards a member of the opposite sex any the less real or permanent because it has developed slowly.

With the response to new ideals comes an intensification of self-consciousness shown by the adoption of an attitude of responsibility. For the exercise of this, adequate opportunities should be afforded both in school and in out-of-school activities. Wise guidance both at home and school is very necessary in order to avoid the dangers of repression or of rebellion.

Teachers will probably find it wise to reduce the amount of drill work required, to make available the best literature of the ages with its presentation of different ideals of human life, and its accounts of human life under different conditions, the wider scientific ideas, opportunities for the satisfaction of æsthetic interests, and for participation in physical games. Teachers need not be afraid that the necessary drill work will be neglected, provided they do not expect every pupil to master every subject equally well and provided the pupils realize that such drill work is a necessary means to the attainment of ideals which they regard as worth while.

CHAPTER III

Simple Statistical Methods

In order to make the best use of the results of experimental psychology, it is advisable for teachers to make themselves familiar with a few simple statistical methods.

Range of Ability

It is usual for teachers to arrange in order the results of any test or examination. In addition it is usually desirable to summarize the results. The writer has observed that many teachers use the laborious method of finding the arithmetical mean (adding all the marks and dividing by the number of pupils) instead of using the simpler method of finding the median. The median is the middle score. If there are 49 papers, the median score is the score of the twenty-fifth paper; if there are 50 papers, the median score is half the score of the twenty-fifth and twenty-sixth papers.

If the same test is given to a number of classes it is convenient to tabulate the results. In tabulating results it is desirable to group together pupils whose marks are nearly the same, especially if there is a wide range of marks from the best to the worst papers. It will be found useful to group marks so that there are between twelve and twenty groups; hence if the range of marks is small there will be no need to group. If the range of marks is between twenty and sixty it is convenient to make the

difference between each group three marks; if the range is between sixty and 100 an interval of five marks between each group will be found useful. A typical tabulation for three classes of pupils who have taken the same test is given below.

TABLE I

*Test.....**Date.....*

Marks.	Class I.		Class II.		Class III.		Total.
20-22	/	I					I
-25	/	I			/	I	2
-28	//	2					2
-31		0					0
-34	///	3	/	I			4
-37	///	3	//	2	///	3	8
-40	//	2	////	4	//	2	8
-43	///	5	////	4	///	3	12
-46	///	6	////	4	//	2	12
-49	///	7	///	7	////	4	18
-52	//	2	///	6	////	6	14
-55	////	4	///	5	////	7	16
-58	//	2	///	3	///	4	9
-61	/	I	/	I	//	2	4
-64		0		0	///	3	3
-67		0	//	2	/	I	3
-70	/	I			/	I	2
-73		0			/	I	I
No. of Pupils:	40		39		40	119	
Median approx. 45		48		52			

From such a table it is possible to see at a glance facts which might otherwise escape notice. It is impossible to overlook the one child in Class I who obtains a higher score than is obtained by any other pupil, in spite of the fact that the class is inferior as a whole to the other classes, nor can one avoid seeing at once the fact that as far as the particular matter tested is concerned there is a greater range of ability in Class I than in the others, that the pupils in Class II are more homogeneous than either of the other classes, and that though Class III is superior to the others, it contains one pupil who is distinctly inferior to the others in this test.

For most practical purposes it is possible to obtain from such a table sufficient information as to the range of ability in any particular group of pupils, but if it is desired to make a summary statement of the range of ability, it is necessary to proceed a step farther.

One simple method is to note the range of marks round the median or arithmetical mean which will include half the pupils. This is more trustworthy than taking the extreme range for the whole group. In Table I it is easily seen that in Class I the bottom ten pupils obtain less than 38 marks and the top ten obtain more than 49 marks each; the middle 50 per cent of the pupils then score marks which range from 39 to 48, taking the central figure of each step as the typical mark for each group. If half the difference between these two scores is taken, the resulting figure gives what is called the semi-inter-quartile range. In this table the semi-inter-quartile range is 5. This means that if the distribution of marks is symmetrical, a range of 5 marks above and below the median would include half the pupils. Comparing the result which follows the application

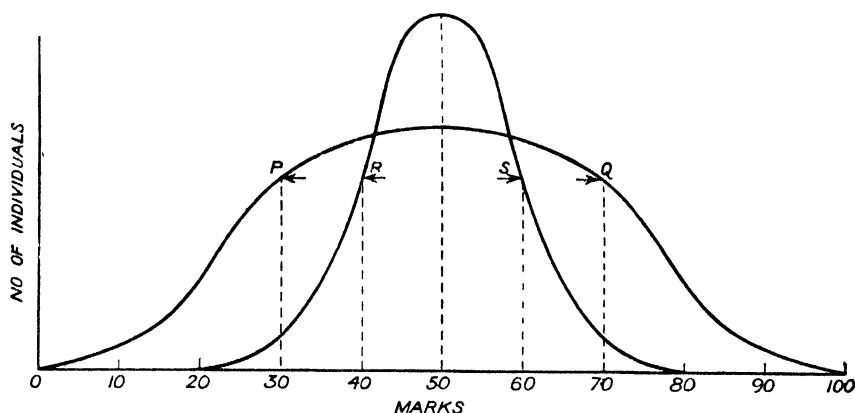


Fig. 2.—The two curves represent the marks of two classes with the same median score (50). In one it is necessary to have a range of marks from 30 to 70 (P to Q) to include two-thirds of the class; in the other a range of from 40 to 60 includes two-thirds (R to S).

of this method to the median score with the results actually obtained, we see that with the median score 45, scores between 50 and 40 should include just half the pupils, whereas actually it was seen that the range of marks of half of the pupils was from 48 to 39.

For more accurate work it is usual for psychologists to calculate what is called the *standard deviation*, which for normal distributions of scores gives the range above and below the arithmetical mean which includes two-thirds of the cases. The method of finding the standard deviation is simple, but its application involves a considerable amount of laborious work if there are many cases to be considered and fractional marks have to be taken into account. Briefly the method is to find the arithmetical mean of all the marks, to find the amount above or below this mean which each individual has scored (this is called "d"), find the squares of these "d's", add them, divide the sum of the squares by the number of scores, and find the square root of the dividend; the number thus found is the standard deviation and is usually denoted by the symbol σ . It is useful to know this, as knowledge of its meaning enables one to

interpret published results more completely. The smaller the standard deviation is, the more closely are the scores grouped round the central score; the larger the standard deviation, the greater is the scatter of scores in relation to the central score.

Correlation

If a group of pupils is tested twice in the same kind of material it is probable that there will be considerable correspondence between the two

TABLE II

	A							B	
	15-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	
71-80							/	/	
61-70							////		
51-60					/	////		/	
41-50			/	//	///	//			
31-40				////	//	/			
21-30			////		/				
11-20	/	///	/						
0-10	/								
	C							D	
	POSITIVE CORRELATION								

lists. If the same group is tested on two different kinds of work it is probable that there will be less correspondence between the two lists. A simple method of showing the presence or absence of correspondence is to prepare a double-entry square, the vertical columns being used for marks in one test, the horizontal files for marks in the other test. A stroke for each pupil is then placed in the appropriate square, so that at a glance one can read any individual's scores in both tests. Tables II and III illustrate this. In the first it will be noted that the strokes tend to be grouped along a diagonal. In the second square there is no such tendency. If the scores in the first table are compared it will be found that there is a close cor-

respondence between high score in one test and high score in the other. In the second case there is no such correspondence. A third case is possible. There may be close correspondence in a negative direction; high scores in one test may tend to be associated with low scores in the other. In this case the square would show the strokes grouped along a diagonal stretching from the opposite corners, i.e. from A to D instead of from B to C.

For many purposes this method of recording marks is sufficient, but

TABLE III

	15-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55
71-80	/			//		/		/
61-70		//	/		//		/	
51-60	//		//	/			/	/
41-50		//			//	/		/
31-40		//		/			//	
21-30	/		/		//		//	
11-20			/		//			/
0-10		/						/

NO MARKED CORRELATION

if more accurate measures of correspondence are required it is necessary to make use of one or other of the methods invented by mathematicians for measuring the degree of correspondence between two sets of variables.

One of the most useful of these methods is the following. It is concerned with the ranks of individuals in a group and no account is taken of actual scores.

A list is prepared of the individuals who have been tested; against the name of each in the appropriate column is placed his rank in each of the two tests; the difference between his ranks in the two tests is found and entered in the next column; these differences are squared to give

the figures of the last column. The sum of these squared differences is obtained and the following formula applied to the result:

$$r = 1 - \frac{6\sum d^2}{n(n^2-1)}.$$

In this formula n is the number of individuals tested, and $\sum d^2$ is the sum of the squared differences. If the two orders are identical the result is 1; if the order of the pupils in one list is the reverse of their order in the other, the result of the application of the formula is -1 ; actually results are found to lie between these two limits. Perfect correspondence is symbolized by $r = 1$. Perfect negative correspondence between the two lists is symbolized by $r = -1$. If the application of the formula gives $r = 0$, this is interpreted as meaning that the degree of correspondence is that which would be obtained by chance.

Other methods of calculating the degree of correspondence have been discovered, but students who are interested in the more mathematical methods of calculation are advised to refer to books specially devoted to the application of statistical methods to educational and psychological investigations.

One valuable use of the method described is that it enables teachers to test the reliability of their examinations. Any one test with similar material gives only a sample of the possible performances of pupils. It is important to know whether the test is likely to give a reliable sample or not, as it may be that the test used only treats of a particular bit of the whole thing to be tested. An obvious example of a test which would not be a reliable index of the pupils' abilities in history would be one which contained six questions on the reign of Queen Elizabeth, and none on any other period, assuming that the pupils were being tested as to their knowledge of English history from 1066 to the present day.

In many cases the reliability or unreliability cannot be discovered by observation. In these cases it is useful to give a second test of the same kind to the same group of pupils and to calculate the co-efficient of correlation between the two sets of results. Unless the coefficient of correlation is high, it is clear that the results of neither test can be relied upon as giving a fair index of the pupils' abilities to perform it. Unless the coefficient of correlation is above 0.8, teachers would be advised to construct other tests.

Another valuable correlation is to see how far the results of a test coincide with the teacher's estimate of the positions of the pupils. A high degree of correlation should exist. If it is high, then the existence of a few individuals whose results are very different from those expected by the teacher will suggest that the teacher's estimate is influenced by other factors than the mere ability of the pupils in the direction tested.

Table IV illustrates the method of finding the coefficient of correlation.

TABLE IV

	Rank in Test I.	Rank in Test II.	Difference in Rank.	Square of Differences.
A	1	1	0	0
B	2	5	3	9
C	3	8	5	25
D	4	4	0	0
E	5	10	5	25
F	6	2½	3½	12·75
G	7	9	2	4
H	8	2½	5½	30·25
J	9	11	2	4
K	10	6	4	16
L	11	7	4	16
M	12	12	0	0
				142

$$n = 12$$

$$r = 1 - \frac{6(142)}{12(144 - 1)} = 1 - \frac{852}{1716} = \frac{864}{1716} = .5.$$

CHAPTER IV

Individual Differences

No two individuals are identical in native endowment. Differences in the relative strengths of the instincts, differences in special abilities, and differences in physical structure, all play their part in differentiating individuals. Differences between individuals at any stage of their development are due partly to differences in innate nature and partly to differences in environmental conditions. Though individuals differ, yet there is much similarity between them. Everyone is to some extent moved by such emotions as those connected with the instincts of fear, pugnacity, curiosity, sex, self-assertion, and so on; everyone is to some extent capable of knowing things, of attending to them, of choosing between them, of desiring some things and disliking others.

It is easy to overemphasize either the similarities or the differences between human individuals. If it is forgotten that it takes all sorts to make a world, there is a danger of exaggerating the importance of similarities which in practice leads to favouring a low general level of attainment.

On the other hand, extremists have based on the fact that no two individuals are alike the fallacious idea that each should be allowed to develop in his own way.

A short discussion of some of the more important differences will aid teachers in their attempts to solve the special problems of their individual schools and classes.

Physical Differences

If there is gross physical defect, special provision is usually made in schools or institutions for the physically defective children. There are, however, physical differences which, while not demanding treatment in separate institutions, are such as to handicap their possessors unless special provision is made for them in the ordinary schools. Very short or very tall children require seats and desks differing from the normal; shortsighted or long-sighted children, if their sight is not adequately compensated by spectacles, should be seated at the most suitable distances from maps, blackboards, illustrations, &c.; children with weak hearing should be given positions near the front of the class.

Differences in Sensory Acuity

In addition to such defects as have been mentioned above, it has been proved beyond dispute that there are many other differences in connexion with the senses which should be noted by teachers. One individual can detect a difference between two colours or two shades of colour where another cannot; one can discriminate between sounds of different intensity which sound alike to another; one can detect slighter variations in pitch or timbre than another; some can estimate distances either visually, tactually, or by movement, more accurately than others; one has a keener sense of smell than another; and so on.

Teachers are advised to note these differences and to make allowances when necessary. The existence of exceptional acuity in any direction should certainly be recorded, as its presence may mark out an individual as specially suitable for a particular vocation. Such knowledge will become of greater importance with the development of industrial psychology and the analysis of the special capacities and abilities involved in different occupations.

Differences in Imagery

Some people are aided largely in their thinking by visual images; others rely mainly on auditory images; while some use motor imagery to a considerable extent. Simple group experiments can easily be carried out with older pupils.¹ The results will not only convince the experimenter of the existence of such differences, but should prevent teachers from expecting all the members of a class to be able to visualize equally well.

¹ For example, those described by Professor C. W. Valentine in *Experimental Psychology and Education*.

It is rare for any individual to be wholly deficient in any one direction, though it is true that the relative importance of the various forms of imagery differs for different individuals. For this reason teachers are wisely urged to present new material in a variety of ways in order to enable pupils to use the kind of imagery most helpful to them. Probably, too, it will be found that those who use auditory imagery to a large extent are handicapped if much of the learning is by silent study.

Differences of Memory

Before discussing differences in memory, it will be convenient to consider briefly the view that memory is one of the faculties of the human mind.

These faculties, which were supposed to be powers underlying such processes as remembering, observing, and reasoning, were regarded as units of such a kind that exercise in one or any kind of material improved the faculty in general. For example, it was supposed that practice in memorizing verse would improve the individual's power of memorizing anything. Differences in the strengths of these faculties were admitted, but the belief was prevalent that general improvement followed practice in one specific direction. Actually the theory gained adherents from the ranks of teachers of those subjects which appeared to be threatened with relegation into the background, as newer subjects claimed places in the curriculum. Formal grammar, particularly Latin grammar, was said to be good for training the reason; memorizing declensions, lists of irregular verbs, &c., was said to train the memory. Teachers of other subjects followed the lead, so that pupils in elementary schools had to submit to lessons on common objects designed to train general observation.

Similar arguments are unfortunately still prevalent among people who are not familiar with the results of a more thorough analysis of mental processes. Every year these fallacious arguments can be heard by those who have to attend school speech days, or prize distributions, or even educational conferences.

It will probably be sufficient if we take the modern analysis of memory as an illustration of how more exact knowledge has undermined the faculty theory.

Memory is not a unitary capacity but a general name covering a number of distinct capacities. Rote memory, i.e. the capacity to retain and recall material without reference to its meaning, needs to be distinguished from substance memory, i.e. the capacity to retain and recall the meaning of material which an individual has learned. A simple experiment will illustrate the necessity of distinguishing between the two capacities.

(a) A list of, say, twenty unconnected names is read in an even tone and at an even rate after the pupils have been instructed that as soon as the list has been read they will be required to write down as many of the words as they can. The answers are checked, one mark being given for each correct word irrespective of order.

(b) A different list containing the same number of words is prepared and each word is printed or written in large letters on a large card. The cards are formed into a pack, so that each word can be exposed serially for a second. The pupils are required, as before, to write down as many of the words they have seen as possible. Answers are checked, one mark being given for each correct word irrespective of order.

(c) A short paragraph similar to that given below is read aloud in an even tone and at an even rate. At the end pupils are required to write down in their own words as much of the sense of the paragraph as they can. Papers are collected and marked, one mark being given for each idea remembered.

Class order lists are prepared for the three tests. The following paragraph is suitable for this.

"For days together a hot, dry air will overhang the town, close as from an oven, yet healthful and aromatic in the nostrils. The cause is not far to seek, for the woods are afire, and the hot wind is blowing from the hill. These fires are one of the great dangers of California. As many as three have been seen at the same time from one place, by day a cloud of smoke, by night a red coal of conflagration in the distance. A little thing will start them, and, if the wind is favourable, they will gallop over miles of country faster than a horse."

R. L. Stevenson (slightly altered).

A comparison between the three lists will probably show that though some pupils are approximately equally good or bad in the three tests, others are good in one and relatively poor in another. It is clear that if the tests measured the ability of the pupils to remember, and if the class order was the same in two lists, we should assume that the same ability was used in the carrying out of the two tests. If the class order in one list was the reverse of that in another, we should assume that two different abilities were used and that the possession of one to a high degree was incompatible with the possession of the other. Actually the results obtained by arranging the results of two tests on the same group of pupils will lie somewhere between the two extremes. An important theoretical and practical question is that of the closeness of the correspondence. Suppose the results of two of the tests on a group of twelve pupils are those given in Table IV (p. 193). Mere observations of the two orders is likely to yield different interpretations from different observers. One may be struck by the fact that the individual who is best in test I is also best in test II, and that the same individual is the bottom member of both lists. Another may be struck by the differences between the positions of many of the pupils. The result may be that the first observer will be inclined to believe that memory is one ability, and that ability to learn one kind of material is evidence of ability to learn any other kind; while the second observer is likely to infer that ability to learn one kind of material is

evidence of ability to learn another kind. The use of a formula for finding the correlation between the orders in pairs will enable teachers to gauge the amount of correspondence more accurately than is possible by mere observation.

The results of these experiments and others of a similar kind will convince teachers that some pupils rely mainly on visual memory, others on auditory memory, while others again will best remember material which they have voiced to themselves. The positive correlations obtained suggest that there is a common factor underlying performance in the various memory tests, but the comparative lowness of this positive co-efficient suggests that memory is not a single faculty.

Another important difference is between immediate and long-distance memory. If a class is tested immediately after learning a piece of work, and again after the lapse of a week, striking individual differences in class position are likely to be revealed.

Similarly, if lists are prepared in order of quickness of learning and in order of amount remembered after an interval of some days, teachers will find sufficient evidence to refute the popular belief that those who learn quickly have poor memories.

Other important findings as the result of more exact researches into the psychology of memory include the following:

(1) It is five or six times easier to learn material which is understood than to learn material which is not understood.

(2) If the learning process is continued *beyond* the stage at which the material is just known, much more is retained than if learning is stopped as soon as the material is just known.

(3) Divided learning is more economical than continuous practice.

More is learned in six periods of ten minutes than in one hour of continuous practice. This is probably due partly to the feeling of boredom involved in long-continued repetition of the same processes and partly to the fact that the effects of practice do not cease to be produced immediately the practice ceases.

(4) Learning large units is in general superior to learning the same material divided into a number of small units. This superiority is increased if the prompting method is used in conjunction with the learning of the larger units. Teachers will find that if pupils are encouraged to test themselves frequently when learning, turning to the text or being prompted by their neighbour at the slightest hesitancy, they will learn far more rapidly than if the prompting method is not used.

The length of unit which it is most economical to learn at one time depends on a number of factors; the nature of the material, the age of the pupils, and their individual rates of learning being the most important.

If teachers apply these principles to the actual work of the pupils in school, they will find that as a rule pupils should be encouraged to read

the whole passage through carefully in order to understand it, explanations and illustrations being given to clear up difficult parts, then to read it through rapidly several times, and then to complete the learning process with the prompting method. Individual pupils should be allowed to use visual or auditory memory according to their natures. After a period of intensive learning there should be a break in which the pupils are not required to attempt to learn new material, as the learning process continues after conscious learning has ceased, and is interfered with if pupils are required immediately on the cessation of conscious learning of one kind of material to attend carefully to another kind of activity. Experiments have shown that after a break in which no strenuous learning has taken place, material which previously was being learnt is known better than at the end of the period of conscious learning, but that if strenuous learning in another direction takes place, there is a distinct falling off in memory of the original material.

Differences in Attention

Experiments have shown that individuals differ in span of attention, in ability to attend in spite of distractions, in ability to attend to intrinsically uninteresting things, and in ability to attend efficiently to a number of different objects in succession.

Span of Attention.—Differences in span of attention, that is in ability to attend to a number of different objects at the same moment, are closely correlated with age and intelligence. It would be foolish to expect a child of five to note in one glance at a flower the colour of the petals, the number of petals, the shape of the petals, the difference between the sepals and petals, the kind of stem, and the kind of leaf. Many adults would fail to note all these points in a single glance, but with increasing age and with maturing intelligence it is possible for an individual to apprehend more things in a single act of attention.

In addition, if a number of separate things can be apprehended as a pattern, the total number of things that can be observed in one act of attention is increased. This can be shown experimentally. A number of cards are prepared by marking large dots on one side irregularly, the number of dots varying from four to fifteen. If they are shuffled and exposed serially momentarily to a class, and the pupils are asked to write down immediately the number of dots they saw, it will be possible to compare the different spans of attention, as different pupils show by their results their inability to estimate accurately the number of dots beyond a certain number.

If, then, a few cards are shown in which a larger number of dots are drawn in regular patterns the results will demonstrate the value of grouping. Fifteen dots arranged in five groups of threes will be recognized as fifteen dots by many more pupils than were able to recognize fifteen dots shown in irregular forms.

Closely connected with differences in span of attention are differences

in ability to do two or more things at the same time. Everyday experience shows that it is possible to do two things at the same time. We can walk or cycle and at the same time carry on a train of thought or engage in conversation with a companion. In these instances one of the trains of activity is habitual, and makes no demand on the individual's attention. If, however, two trains of activity both requiring attention are entered upon at once it is found that they cannot both be continued simultaneously. If the reader observes his own experience when trying, for example, to write down the table given on p. 193 and at the same time to say a familiar poem backwards, he will realize the impossibility of actually doing simultaneously two things each of which requires considerable attention. Probably he will find that his attention alternates from one to the other process, and that doing the two tasks together takes longer than doing them separately.

If this is realized, teachers will not be so prone to demand that pupils should keep a large number of things before their minds at the same time. To seek good writing, good spelling, and good composition from pupils who have not made writing or spelling automatic is to seek the impossible. Similarly to expect good figures, neat arrangement, and thoughtful work in arithmetic from pupils who have not formed habits of making figures, &c., is to demand too much from the pupil.

Ability to withstand Distractions.—Though individuals differ in their ability to continue attending to one process in the presence of stimuli tending to distract attention, yet in general both amount and accuracy of work decreases with increase in the number or intensity of distracting influences. The presence of slight distractions seems to facilitate attention to the work in hand as far as most people are concerned.

There are, however, so many of these minor distractions in the ordinary activities of the classroom that teachers are not advised to create distractions in order to increase the efficiency of their pupils. On the other hand, frequent requests by a teacher to the whole class to hurry, to stop fidgeting, or to individuals to behave, are major distractions to many pupils and result in inferior work.

Ability to attend to intrinsically uninteresting objects.—Some things we are forced to attend to. Loud noises, bright colours, moving objects, and all sudden changes in the field of consciousness due to external conditions seem to attract our attention to them. Such attention may be called involuntary, since it is conditioned mainly externally. Voluntary attention falls into two groups: attention to objects because we are interested in them for their own sake, and attention to objects merely because they are a means of obtaining something in which we are interested; volitional attention, as this kind of attention is called, cannot be maintained for long at a time. Unless the means become interesting it is necessary for the individual to bring repeatedly before his mind the desired end. The ability to do this varies from individual to individual, and from topic to topic. As a general principle teachers will find it wise

to assume that the younger the pupils the less able will they be to attend volitionally. Young children are unable to image clearly or completely ends to be attained in the future, owing partly to the absence of adequate experience. Older children vary in their ability to do this partly because of their different experiences and partly because of their differing abilities to profit from experience. The wider the experience and the more intelligent the individual the more easily will the relation of means to ends be realized. If this relation is clearly realized, then the degree of concentration on uninteresting means will largely depend on the vividness with which the idea of the end is present, and on the intensity of the desire to attain it. Hence it will, as a rule, be undesirable to demand attention from pupils to uninteresting tasks for the sake of achieving a purpose at a remote date. On the other hand pupils must learn that the fruits of their labours are sometimes to be gathered at a later date, and thus discover the value of preparation for future needs. Before the age of adolescence, however, pupils need to have set before them ends which can be realized within a short period of time, and in addition they should be encouraged by success. Attention will not continue to be given unless the activity is progressively successful and hence pleasant. On the other hand, if success is very easily obtained there is little pleasure.

It is important for teachers to realize this connexion between attention and pleasant feeling—the more intense the mental activity, provided it is successful, the greater is the pleasure, and hence the greater probability that similar activities will be whole-heartedly entered on in the future; but the more intense the unsuccessful activity, the less likely will pupils be to face with a good will similar activities in the future. From this point of view careful grading of pupils and selection of work are of great importance. The writer has found that it pays to reward unsuccessful effort, not by praising the pupil for making the effort, but by praising something definite in the result achieved. Repeated failures are evidence of poor selection of work or of unsatisfactory methods of presentation. Either the work is unsuitable for the pupil or it has been presented in such a way as to raise an unsatisfactory emotional attitude towards it.

With older pupils a new problem has to be faced. Young adolescents take themselves very seriously. They will, as a rule, attend strenuously to anything which they believe will lead them to the achievement of a purpose they have set before themselves, but will devote little attention to activities for which they can find no such justification. Their knowledge of the world is inadequate, so that they do not know what are the most desirable ends to be achieved, nor those which are within their capabilities; they are, therefore, apt to set before themselves unsuitable ends towards the attainment of which they spend their energies wastefully. That this is a serious problem for teachers of pupils who have been selected on account of promise for further education is admitted by thoughtful teachers in existing secondary schools; that it will be a more serious problem for those teachers who will have to deal with unselected

adolescents is certain. These pupils will have less specialized ability, and in many cases, will have had comparatively narrow experience of the broader aspects of life. Many develop ambitions for the attainment of which they are not really suited; witness the number who wish to become clerks in spite of the fact that their abilities run in a practical direction. Teachers will have a heavy task in discovering the possibilities of their pupils, and of helping them to build up sentiments in favour of those activities which are within the bounds of probability. If this major task is performed, the minor one of devising suitable curricula, and of presenting the various subjects so as to show their relation to the desired ends, will present less difficulty, though teachers will probably find it necessary to discard preconceived notions as to what subjects should be studied by the adolescents in the senior schools or the higher tops.

If courses are made narrowly occupational, the pupils will no doubt attend keenly to the subjects which are devised to prepare them for specific employment, but any such narrowing of the syllabus will defeat the main purpose of further education. If, on the other hand, courses are made too academic, as has undoubtedly been too frequently the case in the past, pupils will feel that the school is not helping them to realize their ambitions and attention to school work will be small.

There is also the possibility, after classifying the pupils into three parallel lines of advance as has been suggested in various reports and schemes of organization, of falling into the serious error of treating the B and C lines as weaker specimens of the A line. The writer has seen this tendency at work in the devising of syllabuses for senior schools; pupils in lines B and C have been given the same syllabuses, with the qualification that they will not be expected to cover them as thoroughly as the pupils in the A groups. If this course is adopted, there will be a recrudescence of the attitude of indifference to school work which was prevalent in the top classes of elementary schools not long ago.

In planning courses, teachers will find it profitable to bear in mind the fact that for each pupil there is one activity which he can perform better than any other, and that there is probably something in which he is more interested than he is in anything else. To discover the two things and to build upon them a scheme of work which will satisfy the main interests of the pupil, and at the same time prepare him for the practical activities in which he will probably be engaged, is, in the main, to solve the problem of securing attention to the desired subjects. But teachers will not lose sight of the fact that these practical activities include much more than "earning a living". Further reference to this problem will be made later in connexion with the emotional life of adolescents.

CHAPTER V

Sex Differences in Children

The application of scientific methods of investigation to the problem of the intellectual and emotional similarities and differences between the sexes has shown that differences between individuals of the same sex are more important than average differences between the sexes.

In school subjects boys, on the whole, do slightly better than girls in mathematics and abstract reasoning, while girls do a little better than boys in linguistic subjects. It is not possible from these results to declare that by nature girls are proved to be more able than boys in one direction. The differences may be due to differences of emphasis in teaching, and to the effect of common opinion as to what is expected from boys and girls respectively in school work. If boys are expected to do more mathematics than girls, and they are aware of this expectation, it is probable that they will try to live up to it, and teachers will devote more attention to the mathematical training of boys than to that of girls.

On social grounds it may be desirable to provide different curricula for boys and girls. On psychological grounds it is important to make provision for the greater differences between members of the same sex.

Most investigators agree that there is one important sex difference. Though the average abilities of the two sexes may be the same, the girls are more nearly alike than the boys. There are more mentally defective boys than girls, and at the same time there are more markedly brilliant boys than girls, so that the average of the two sexes is about the same.

Extreme upholders of the doctrine of the equality of the sexes declare that these results do not prove that innately there are more males of superior ability than there are females. They declare that environmental conditions from birth tend to give boys a better chance of developing their abilities, that girls are expected to devote more time to household tasks, while boys are free to devote more time to lessons, and that, even in the case of elementary school pupils who do no home-work, the difference in attitude of parents to the two sexes would be sufficient to account for the differences in achievement.

Whatever the explanation, the fact that there is greater variability in the achievements of boys than girls remains true. The writer believes that it is sufficiently marked to justify a greater number of scholarships being made available for boys than for girls, especially near the top of the educational ladder. When a system of an equal number of scholarships being given to girls and boys is adopted, it is found that in practice some boys are denied scholarships in favour of girls with a lower degree of achievement. The practice may of course be defended on other grounds, but the writer holds that it is more important that opportunity should be given in proportion to ability irrespective of sex.

Emotionally both sexes are fundamentally similar, though the emotional development of adolescence occurs a little earlier in girls than in boys. Slight differences between the sexes are suggested by Dr. Burt in his book *The Young Delinquent*, but though such emotions as those connected with pugnacity and self-assertion may be slightly stronger in boys than in girls, and the emotions connected with social life be slightly stronger in girls than in boys, the differences are small compared with the great similarities.

Of greater importance is the fact that under existing social conditions girls more frequently have to choose between a career which gives them an opportunity of developing their special abilities and one which satisfies their sex impulses. Boys can as a rule look forward to satisfying both. One result of this difference is that more girls than boys suffer from the results of repression of one or more strong tendencies.

This is more marked in the case of girls of superior ability than in the case of girls of average ability, and it suggests that teachers need to be specially watchful of the abler girls in school.

For these reasons, and perhaps largely on account of the fact that it is easier to run separate schools for the two sexes than to run a mixed senior school, some educational experts advise separate schools for the two sexes. There is, however, much to be said in favour of mixed senior schools, where the growing adolescents can learn to understand each other in a sheltered society instead of being left to make each other's acquaintance under conditions which are in many cases less favourable. With the decrease in the influence of the home on the adolescent, it is increasingly important that schools should do all that is in their power to foster the development of right sentiments between the sexes; the mixed secondary and senior or central schools give a valuable opportunity.

CHAPTER VI

Mental Tests

There are several different kinds of mental tests. Some tests are devised to measure native intelligence, others to measure specific mental traits such as rote memory, attention, persistence, suggestibility, and others are devised to measure the effects of training in the acquisition of knowledge or in the performance of action involving skills of various kinds.

In the preceding section reference has been made to some of the tests of specific mental traits. In this section attention will be directed to the educational use of intelligence tests and tests of achievement in knowledge and other acquisitions.

As most readers are aware, intelligence tests originated in the study

of individual differences as revealed in attempts to discover general principles of human behaviour by the use of experimental methods. The early experimenters endeavoured to measure specific mental capacities, but, with the development of methods of measuring correlation, it was found that the results of certain tests showed a high degree of correlation with those of other tests. From this it was argued that tests which showed a high degree of correlation tested a general factor or group of factors. Efforts were soon directed towards the devising of tests which would measure this general factor. Among those who have contributed most to the successful development of methods of testing intelligence along these lines is Professor Spearman.

Another line of development followed from the work of Binet. In his efforts to discover tests which would enable him to select pupils who were unfitted for instruction in the ordinary schools of Paris, he found that certain tests were satisfactorily answered by children of a certain age, while children of a younger age were in general unable to answer them. Working at first in co-operation with Simon and later alone, he experimented with a large number of tests, selecting those which appeared to be suitable for pupils of certain ages. These were arranged in groups such that the average five-year-old, for example, would be able to answer the group of tests for five-year-olds, and would fail to answer those for the six-year-old. He assumed that general ability increased with age, and that it was possible to measure it by measuring the responses of children to the varied tests he had prepared. Since 1908 many revisions and alterations of his scale have been made in order to discover the most reliable method of measuring this general ability.

By 1930 there were more than thirty well-known tests of general ability for use with pupils at school or college.

Two fundamental principles were soon revealed. The first was that performance in response to any test was partly dependent upon the kind of training which the individuals tested had received, and the second that performance was partly dependent upon the possession of special abilities.

In other words there is no test which measures merely intelligence. In order to think, there must be something about which to think, and the thinking has to be carried on with some material. Familiarity with a certain kind of material, or specialized ability in connexion with a certain kind of material, will enable some individuals to make better responses than those made by individuals without such familiarity or special ability. Thus a mathematician would undoubtedly achieve better results in a test composed of mathematical symbols, and involving what we may call mathematical operations, than would be obtained by an individual who had been trained as a linguist and had not been trained in performing mathematical operations.

Two important results follow from the realization of these principles. The *first* is that a group of tests is more likely than a single test to give

a measure of the general factor. This is not merely because different tests involve different abilities, but because the mental processes involved are carried out with different material, and hence, if the material is wisely chosen, differences in response due to differences of familiarity with material will be largely balanced out. The usual practice in choosing material is to select only that which every individual to be tested may be assumed to have had experience of in the ordinary course of his or her life. This assumption is not always justified.

The *second* result is that it is necessary *to realize the limitations of intelligence tests*. Most of the material used in the construction of intelligence tests is material with which every school pupil may reasonably be expected to be familiar, hence we may expect that in school work pupils will on the whole achieve results which correlate to a high degree with the results obtained from the application of intelligence tests. But to go farther, and say that success in meeting the demands of the world outside school will correlate equally highly with success in intelligence tests, is to neglect the fact that success in any material depends upon a number of factors of which general intelligence is only one.

Another matter which is of considerable practical importance to teachers is this. Since performance is partly dependent upon familiarity, it is to be expected that special training with examples similar to those used in any intelligence tests will enable pupils to obtain higher scores than pupils who have not had such training. A few years ago the writer carried out some experiments which showed clearly that performance in certain intelligence tests was affected not merely by special coaching, but by the kind of teaching given in the schools.¹

Teachers who wish to make the best use of these tests will refrain from using them frequently, and should choose, if possible, tests which have at least two sets of questions.

Before discussing the value of these tests to teachers, we must consider some questions on the interpretation of results.

Intelligence tests consist of a number of questions which pupils are to attempt to answer in a given time. These questions are usually arranged according to one of two plans. Either a number of questions of approximately equal difficulty as measured by preliminary tests are set, grouped in a number of sections, for each of which a time limit is set, or the questions, whether set in sections or not, are arranged in order of increasing difficulty.

It is clear that according to the first plan the questions must be such that every individual, if able to answer one, should, if he is given long enough, be able to answer all. Hence, if differences in results are to be obtained, a time limit must be set such that only the very quickest workers would be able to complete the test in the time allowed. Such a test would measure speed of performance.

In the other type of test with graded questions, it would be possible

¹ See *Forum of Education*, November, 1924.

to arrange a series of questions so that every individual would be able to answer at least one question, but that there would come a point at which even the ablest individual would have to stop, not because of lack of time, but because he could not answer the question. Such a test is said to measure power or limits of capacity to deal with the given material.

Actually speed and power are involved in the carrying out of any test in general use. The abler the individual the more quickly as a rule can he answer the simple questions which must constitute the material of tests devised according to the first plan, and again as most tests do not include questions beyond the capacity of the ablest pupils, it is usual to set a time limit; otherwise a number would succeed in answering the whole test, and there would then be no differentiation between those at the top of the scale.

Investigations have shown that there is not perfect correlation between the results obtained by the application of the two types of tests to the same individuals, so that it seems probable that though general ability is tested by both, other factors are also tested. Consequently in interpreting the results of tests, teachers need to bear in mind the kind of test used. For some kinds of activity, effective speed is extremely important, but for others, power is much more important than speed. In a time of stress it is no doubt important that those in charge of affairs should be able to solve problems quickly with a minimum of errors; but in times of peace it is more important that those in charge of public affairs should be able to think out new ways of preventing troubles than that they should be able to solve simpler questions quickly. It is relatively unimportant whether it took Shakespeare a few minutes or years to create Lear, Hamlet, Othello, or any other of his unique characters; the important thing is that he had the capacity to create them. Similarly with other inventive or creative work, power is more important than speed. If these two factors, speed and power, are both tested, it would be desirable to record the results in each part of the whole test separately, and then finally to discover how to combine the scores in order to obtain in a single score the most useful information about the pupil.

When tests are made up of graded questions, two methods of grading are available. An attempt may be made to make each step of equal value, or the questions may be graded according to the percentage of children of a given age who succeed in answering them. The first method involves the use of statistical methods which it is not proposed to discuss in this article. If the second method is used, we must not assume that each step is of equal value. That would only be true if growth in ability was uniform.

Another general topic of importance to those who have to interpret the results of intelligence tests, is the fact that performance in any test is only a sample of the possible performances which a given individual would make if he were submitted to a number of similar tests. Hence the question of the reliability of the sample must be faced. To judge the

crop of peas in a garden from a single pod brought to us by the grower is no more foolish than to attempt to judge the intelligence of a pupil from his answer to a single question. A handful of peas gathered indiscriminately from different parts of the crop would undoubtedly be a more reliable sample. Similarly it has been found that a number of tests yield a more reliable sample of an individual's ability than any single test. The usual method of testing reliability is to give parallel tests on two different occasions to the same group of individuals and to find the correlation between the results. If there is a high degree of correlation, we assume that the tests are reliable in this direction.

The next important topic is that of comparing the results obtained by different pupils to the same group of tests. Unless there is a standard by reference to which results may be checked, teachers will obtain little more from the tests than the knowledge that, let us say, pupil A scores 85 points while pupil B only scores 60. This knowledge is no doubt valuable, but as a result of the work of Binet and his successors it is now possible to compare the results obtained with one group of pupils with those which are found to be characteristic of pupils of a given age, and thus discover how much each child is above or below the average score for pupils of his age. Accompanying most intelligence tests are tables showing the scores obtained by a certain percentage of unselected children at different ages. By the use of these tables it is possible to interpret the raw score of any pupil in terms of the age of those children who on the average obtain the same score. Thus a measure is obtained which is independent of the pupil's actual age. A pupil aged ten may obtain a score which is the same as that obtained by the average twelve-year-old, or one equal to that of the average eight-year-old; in the first case his score is interpreted as a mental age of twelve, in the second, as a mental age of eight. Intermediate mental ages can easily be calculated.

A pupil's mental age gives by itself no indication of the pupil's brightness; it merely states that in ability he has reached the stage reached by 50 per cent of children whose actual age is the same as his own mental age. It is clear that a pupil aged ten who obtains a score equivalent to a mental age of twelve, is brighter than a pupil aged twelve who obtains the same score. The usual method of estimating the degree of brightness of pupils from the results of intelligence tests is to calculate the ratio of the mental age to the actual age. The ratio is called the Intelligence Quotient. Thus the I.Q. (these letters are the accepted symbols for the Intelligence Quotient) of a child aged ten with a mental age of twelve would be twelve divided by ten, i.e. 1.2. For convenience it is usual to multiply the result by 100 so as to eliminate decimal points. It has been found that the I.Q. of pupils remains fairly constant throughout the ordinary school life.

If, however, this method were used without modification for interpreting the scores of older people, the result would be that after a few years the I.Q. would gradually become smaller. This is due to two facts.

On the one hand there is the fact that tests and standards have not in the main been devised for individuals over the age of sixteen; and on the other, there is the fact that mental ability does not appear to continue to develop throughout life.

An important question in connexion with the growth of intelligence may be raised here. Do pupils of different degrees of brightness reach the limits of mental development at the same ages?

The fond parent tends to accept the popular view that children who are behind their fellows at an early age will continue their development for a longer period and so catch up to their brighter companions, who, it is popularly believed, will mature at an earlier age and so lose their initial advantage.

Then there is a view which is widely held by psychologists that children of a low degree of intelligence reach the limit of their development at an early age, and that the brighter the child the longer will he continue to grow intellectually.

A third view is gaining ground as the results of intelligence tests are examined more carefully. This view is that there is no correlation between degree of brightness and length of period of development in intelligence; that is that some dull pupils will continue to develop longer than others and that some bright pupils will mature earlier than others.

Until about 1920 it was thought that mental maturity was reached in early adolescence. Terman, for example, assumed that it normally was reached by the age of sixteen. For purposes of calculating I.Q., every individual over the age of sixteen was treated as though he were sixteen.

But with the development of tests for older people, that is of tests which were too difficult for the average sixteen-year-old, it was found that mental growth appears to continue beyond the age of sixteen, and that it is probable that it continues until at least eighteen.

Consequently if adults do not score so highly in any intelligence test as children, random samples of both being tested, we are not justified in assuming that the adults have deteriorated in intelligence. It is probable that, through lack of familiarity with the kind of material used in the tests, they make lower scores.

Educational Uses of Intelligence Tests

One valuable application of the results can be made if all newly admitted pupils are tested on admission. If the results are taken in conjunction with the results of tests in knowledge, it will be possible to assign each pupil to the class for which he or she is most suited. It is not suggested that pupils should be graded merely by mental age; if they were so graded it is probable that some pupils would suffer because of serious gaps in knowledge, that some would suffer from being placed with children much older or much younger than themselves. There is much to be said for allowing not more than a year's variation on each side of the average age of a class, though in exceptional cases a pupil could with advantage be placed

in a class whose average age was different by two years. In any case teachers would have, as a result of using the tests, more accurate knowledge of the pupils' mental abilities than could be gained from working with them for some time, and with that knowledge teachers are certainly better able to allot them to suitable classes than if reliance is placed merely on knowledge tests or on impressions at a short interview.

If the school is large, so that it is possible to divide pupils of the same general ability into parallel classes or if it is desired to divide a class into sections, the Intelligence Quotients of the various pupils should be taken into account, one class or section containing pupils with the highest I.Q.s, another those with a medium range of I.Q.s, and a third containing pupils with the lowest range of I.Q.s.

It should be noted that if this is done, it by no means follows that the bright section in one school should be expected to reach the same results as the bright section of a corresponding class in another school. Comparisons between the pupils of different schools may show that one school has in a given class pupils whose I.Q.s range from 130 to 85, while the range in a corresponding class in another school may be from 110 to 65.

Comparisons of this kind can only be made by the aid of standardized tests. That they should be made and that the results should be in the possession of those responsible for the organization of education in an administrative area should be obvious. In the first place responsible authorities will know that poor results in a school whose pupils are of low mental ability do not signify poor methods of teaching, while similar results in another school might very well be proof that there was undue weakness in teaching. In other words, it would be possible to estimate with some degree of accuracy the efficiency of schools and methods of teaching, so that teachers would not be penalized, when questions of their own promotion arose, because they had taught classes with a low average of mental ability.

In the second place, comparisons between methods of teaching could be made with greater confidence. It would become evident that the difference in results obtained by using different methods was due to the methods and not to differences in intelligence between the two groups of pupils. The writer is convinced that some methods of teaching have been adopted by some teachers because of the results which other teachers using them have obtained with their pupils. Unless the abilities of the pupils are about equal, and the Intelligence Quotients about the same, no valid comparisons between methods are possible. Pupils of higher mental ability and brighter pupils will in many cases produce better results even if poor methods of teaching certain subjects are used than will be produced by pupils of a lower degree of intelligence taught by better methods. Hence the value of using intelligence tests if teachers wish to discover the best methods of teaching the various subjects of the curriculum.

Again, knowledge of a pupil's general ability should enable a teacher

to adjust demands to the pupil's capabilities, so as to prevent overstrain on the one hand and, on the other, to prevent a pupil from forming the habit of working below his capacity. Without knowledge of a pupil's general ability a teacher may be content with an average result from a particular pupil because that pupil has throughout his earlier school career not been required to use his abilities fully. Occasionally a teacher who uses an intelligence test for the first time is surprised to discover that some of the pupils who are near the middle of the class lists in the ordinary school work score highly in the intelligence test, and that some who are near the top in the school lists are nearer the middle of the class in the general ability list. Two main reasons may be mentioned for these variations, either or both of which may operate in any particular case. First, moral qualities are not taken account of in intelligence tests, but such moral qualities as perseverance, and doing one's best, count for much in school work. Secondly, some of the school subjects involve special abilities in addition to general ability; for instance, a pupil may have a high degree of intelligence and yet be a poor reader, or have a gift for using words and thus score highly in the ordinary school examinations, and yet be of mediocre intelligence.

The existence of discrepancies, that is, of marked differences of rank in intelligence and school subjects, should lead teachers to seek to discover the causes. A gap in knowledge, inability in a special direction, may be met by special practice; if lack of effort is diagnosed, then the remedy is obvious; find the appropriate means of stimulating the pupil to greater effort. Often it is found that the setting of harder problems will stimulate pupils to try to solve them; if they are successful they may realize, as they never realized before, that they have it in them to do harder work. There is no doubt that it is possible to waste much of a pupil's time by keeping him working at problems which are too easy for him. The use of intelligence tests gives teachers an opportunity of checking the work of pupils in a way which is more reliable than either using the results of school subjects tests or relying on impressions can be.

Achievement Tests

With the development of the technique of intelligence testing, there gradually arose attempts to use more reliable methods of testing achievement. Three lines of advance may be mentioned briefly. These are concerned with (1) improvements in the tests; (2) the standardization of tests in the various school subjects, and (3) the use of tests to enable teachers to trace the precise cause of specific weaknesses.

(1) **Improvement in the tests.**—One of the defects of the old type of examination was that it was only possible to obtain answers to a few questions, as much time was necessarily spent in writing answers in essay form. This meant that only a small sample of the pupil's knowledge could be measured, and it is obvious that the smaller the sample, the less likely is it to be representative of the whole.

Another defect from the point of view of obtaining reliable information of a pupil's knowledge was that it was difficult for teachers to mark objectively. A pupil with a fair knowledge of the subject-matter would almost inevitably score higher marks if he had linguistic ability and could write quickly than a pupil with the same knowledge who was handicapped by poor linguistic ability or slowness in using a pen.

The new type of examination in school subjects avoids these defects to a great extent by setting a larger number of questions, answers to which involve the minimum of writing. The more extensive use of some of the following types will aid teachers in devising tests which will give reliable information as to the knowledge of their pupils.

- (1) Questions which require the pupils to state whether a given statement is true or false.
- (2) Questions which require the pupil to select the best answer from a number of suggested answers.
- (3) Questions which require pupils to fill in gaps in the statements made in the question. Words may be supplied from which the selection must be made or the pupils may be required to recall the words.

In preparing such tests it is advisable to bear in mind a few general principles. The first few questions should be such that all the pupils being tested should be able to answer them. Ambiguity should be avoided. Questions should be short and independent of each other (i.e. one question should not involve an answer from another). They should cover the whole range of the knowledge to be tested. In practice it would probably be advisable to prepare a collection of questions on the whole of the course for which a teacher is responsible, so that there would be available a collection of well-devised questions from which selections could be made at short notice, to suit particular needs. Additional questions could be added from time to time.

(2) **Standardization of tests.**—As tests of the kind mentioned are used more extensively, it becomes possible to prepare tables showing the average results obtained from pupils of different ages or of different degrees of intelligence. In this country there are already available some tests of this character. Teachers who are interested should study the Northumberland Standardized Tests in English and Arithmetic.

If teachers use standardized tests, it becomes possible for them to determine the position of their pupils as compared with that of others of the same age, &c., to determine whether too much or too little attention is being given to any particular subject as shown by comparison of results in different subjects, to compare the relative efficiency of different methods of teaching, and among other things to determine whether an individual pupil or a class is making satisfactory progress.

(3) **Tests to trace causes of weakness.**—One of the results of the more extended use of the new type of test has been that teachers have

been led to analyse more completely the specific items of knowledge and the mental processes which are necessary for the answering of given questions. If teaching is to continue to improve, full use must be made of the results of psychological analysis of the specific factors necessary for success in any achievement. Unfortunately too little attention has been paid to this side of educational work. It is comparatively easy to measure a pupil's ability in arithmetic or in one branch of arithmetic, but it is not easy to say definitely of a pupil who scores badly in the subject that his failure is due to weakness or lack of training in a specific direction.

In the short space of this article it is impossible to illustrate the use of tests in this field of investigation, but the writer believes that it is on the side of devising tests to reveal specific weaknesses in knowledge or skill that educational psychologists need to concentrate for some time. With more accurate knowledge of the causes of error, it becomes possible to arrange special exercises to remedy them and to prevent their occurrence in the future. Teachers are recommended to look out for the publication of articles or books giving the results of researches on this aspect of school work. Those who are looking for suitable material for research work will find it in any subject of the curriculum.

CHAPTER VII

The Emotional Life of Pupils

Teachers are familiar with the general lines of emotional development, so that little need be said here on this topic. Emotions at first are aroused by specific objects of which the individual becomes aware, and towards which he has tendencies to react in specific ways. Repetition of experience of some of these objects develops a more or less permanent disposition for the same kind of emotion to be aroused whenever those objects are present to consciousness, either through sense experience or through imagery. With increased intellectual development comes the recognition of classes of objects and of their relations to each other and to the self. Concomitant with this intellectual organization is emotional organization. Sentiments are formed centring round particular objects, classes of objects, and round abstract ideas, so that permanent tendencies exist to experience the appropriate emotions whenever the objects or ideas are present to consciousness.

One of the important functions of education is to direct this organization along lines which are socially approved, so that permanent tendencies to fear things which would not instinctively be feared, to be angry with things in connexion with which there is no instinctive urge to be angry, and so on, will be formed. The most important group of objects towards which it is necessary that children should learn to react appropriately

and to feel desirable emotions is the group included under the rubric "civilized society". The method of learning is of the same kind as that used in learning the nature of the physical world, learning by trial and the elimination of error either in concrete situations or in the world of ideas.

The former method is often accompanied by much suffering, and is so costly in time that it is impossible for children to learn by means of it all that it is desirable for them to learn of the physical world. Teachers make use of the fact that it is possible in the case of human beings of average intelligence to reduce the learning process by making use of the ability to experiment in the world of ideas, to think out what results will follow if this, that, or the other is done in the physical world. In this way the instinctive endowment of human beings is modified, and they learn to deal successfully with material things and with characteristics of the physical world which were unknown to our prehistoric ancestors during the ages through which the various instincts were being developed.

This instinctive endowment, insufficient for the needs of man in connexion with his physical environment, is at least equally inadequate for his social needs. Men do not know instinctively how to behave in the many social situations that arise in a community which has reached the present stage of civilization; they have to learn. If all learning takes place in the hard world of direct experience, it is certain that many mistakes will be made; and just as in prehistoric times mistakes in dealing with the physical world were followed by serious consequences, so also will mistakes in dealing with the modern social environment.

By the institution of sheltered societies, e.g. schools, Society makes some attempt to teach its immature members how to live socially and so prepare them in some measure for the experiences of actual social life. Thus does it try to prevent the serious mistakes.

In this learning it is impossible to separate the intellectual and emotional aspects. The nature of the emotional attitudes aroused in connexion with the various ideas determines the emotional attitude that will become centred round them. If the social facts and ideals are presented in ways which arouse emotions which it is desired should be felt in connexion with them, and at the same time in ways which enable the whole of the pupil's ideas and emotions to harmonize with them, a stable, desirable character is being developed. The process of securing harmony is a slow one, as it usually involves the modification of existing ideas and emotional dispositions. If these are strong and do not easily harmonize with the new ideas, the individuals concerned pass through a period of marked instability which sometimes is so intense as to call for expert advice.

Difficulties may arise in several ways. It is possible that different members of the adult society present the different aspects of society in ways which arouse different emotional attitudes. Parents may arouse in their children one emotional attitude by their treatment of certain social facts, while teachers may arouse a different emotional attitude by their presentation of the same facts. If both are strongly aroused it may

happen that two opposed emotional dispositions are formed, both of which tend to be active when the central idea is present in consciousness. When this happens it is possible that the individual will be torn between the two and be unable to decide between them. If both are strong it is probable that mental instability will be so intense as to give rise to the signs of neurasthenia. In this connexion the work of Pavlov is suggestive. He trained a dog so that it made a certain response on the presentation of a circle and the contrary response on the presentation of an ellipse. Then gradually the shape of the ellipse was altered, the two axes being made more and more nearly the same, until a stage was reached when the dog, faced with an ellipse which was nearly a circle, developed the characteristic signs of neurasthenia.

Teachers should make themselves familiar with the signs of incipient neurasthenia, so that by taking appropriate steps, such as securing the friendly confidence of the pupil and consultation with the parents, they may discover if the pupil is unable to bring two sets of ideas or ideals into harmony with each other. As was said before, teachers should not attempt remedial treatment if the breakdown is serious.

Some people respond to the existence of opposed ideas and emotional attitudes in another way, which, though it prevents mental instability at the time, may be a source of much trouble in later life. Instead of becoming unable to face the situation at all, and losing interest in life, the individual ignores one set of ideas, the other set being harmonized with other ideas. But the ignored ideas together with their emotional dispositions have not ceased to be, as is proved by the fact that they continue to influence behaviour, though the individual may cease to be able to recall them. In order to distinguish these repressed ideas, with their connected emotional dispositions, from the organized emotional attitudes which are not repressed, some psychologists describe the former as "complexes", reserving the name "sentiments" for the latter. It is probable that most normal people have complexes many of which do not seriously interfere with the enjoyment of life, but there are people with complexes of such a kind that it is impossible for them to live satisfactory lives in modern society.

Many adults suffer from a Shakespeare complex. They cannot avoid hearing the name Shakespeare of course, but they declare that there's nothing in Shakespeare, or that he may be all right for highbrows but his plays are unsuited for the majority. Their behaviour when Shakespeare is mentioned is clearly irrational, but though they are debarred from certain kinds of enjoyment it cannot be said that they suffer seriously on account of the existence of a Shakespeare complex. If its origin is traced, it is found again and again that at school a play by Shakespeare was studied either in such a way as to arouse an antagonistic attitude to it, or at a time when the pupil was unable to enter into the lives of the characters. Sometimes the antagonism arises because of dislike of the teacher of the subject. The teacher was harsh, or unjust, or namby-

pamby, or in some way or other aroused an antagonistic attitude which the pupil could not express frankly, because such expression was incompatible with the accepted social relations between pupils and teacher. Repression of the idea produces a complex, the presence of which is evidenced by the fact that the pupil shows lack of interest in anything demanded by that teacher.

Unwise treatment of children at home or school may give rise to one or other of several complexes, the existence of which may seriously interfere with the social life of its possessor. One of the most important of these is the inferiority complex. This may arise through the real or fancied existence of a physical or mental weakness. Children who suffer from any physical disability are extremely liable to dwell on their weakness, especially if others call attention to it. Feeling ashamed of their weakness, they either strive to assert themselves in other directions or take refuge in day-dreams and phantasy. Teachers should note those pupils who develop excessive boastfulness, swagger, or crude tyranny over their fellows; usually such behaviour is due to the existence of an inferiority complex. They should also note those who withdraw more and more from the battle with reality, who, having lost hope of success, find compensation in dreaming of success; such pupils are usually victims of an inferiority complex.

Obviously the teacher's attitude towards and treatment of such pupils will be guided by the necessity of discovering the source of the complex, before attempting to help each sufferer to recover his mental balance.

A distinction should be made between those who day-dream as a means of escape from a world to which they fail to adjust themselves, and those who after day-dreaming return to the world of reality inspired by their dreams of success. Demosthenes, the stutterer, must have dreamt of being a successful orator; he did not remain content with his dreams but determined to make them true. His efforts, as we all know, were successful.

As was pointed out, little can be done in the early years of a pupil's life towards securing a sane outlook in maturity. Concrete situations can be dealt with as they arise, and habits of conduct in conformity with social standards can be established; but even in these years there are difficulties if pupils are expected by one set of adults to adopt certain habits and by another set to adopt others. More can be done during adolescence, as interest in the wider society is then becoming keener and can be used as a basis on which pupils can develop permanent sentiments in harmony with the higher ideals of civilization.

This is not the place to make specific recommendations on curricula, but teachers are advised to consider whether it will not be wise to re-examine the traditional subject-matter of some of the subjects taught. History, for example, though there have been welcome changes in some directions, is still probably inadequate if it is the chief means by which

pupils are to learn the basic relationships of social life. Probably a course combining the historical approach with much that across the Atlantic is called social science, will be found valuable in enabling pupils to face social problems squarely. It is not suggested that history or social science is the only subject which will help pupils to develop a healthy emotional attitude towards society. Other humanistic studies are of great importance, and the humanistic aspect of such subjects as natural science and mathematics should not be neglected.

Of great importance, too, is the social life of the school. The school life should undoubtedly give opportunities for pupils to live a social life in which they will find their place largely by trial and elimination of error, their mistakes bringing about responses from other members of the society which will help them to learn how to behave. The school society should not overlook unsocial behaviour, nor on the other hand should it deal with it as rigorously as societies outside the school are likely to.

CHAPTER VIII

The Abnormal Child

In a very important sense there are no normal children. The normal child is an invention of the educational theorist. No two so-called normal children are alike. That some are more alike than others is obvious. If the divergence from the abstract normal is very great, or, in other words, if an individual behaves in ways which are very different from the ways of the majority of his fellows, he is said to be abnormal. Such abnormality may be above or below the average. In the recent past, more attention has been given to those who are below the average. It is probable that the social value of the supernormal is much greater than that of the subnormal. There seems to be general agreement among sociologists that of two societies of the same average abilities the one with greater variation in range is likely to advance more rapidly than the other. If the presence of supernormal individuals at one end of the scale is balanced by a number of subnormal members at the other, yet the group as a whole can profit from the discoveries made by the supernormal. From this it follows that supernormal pupils should be selected as early in their school career as possible, in order that they may receive such treatment as will enable them to develop their abilities to the utmost. Supernormality may occur in connexion either with general intelligence or with specialized abilities such as those involved in excellence in pictorial art, sculpture, music, mathematics, languages, or in a branch of engineering. It is probable that during the early years of school life little can be done for those who have special gifts, as most of the pupils' time will be spent

in mastering the fundamentals underlying almost every intellectual activity and in discovering their own special interests. But during early adolescence it is advisable to make adequate provision for the supernormal. Some with special abilities will have found suitable opportunities for development in technical schools, schools of art, and secondary schools, but some will undoubtedly be found in the central schools, senior schools, and higher tops. For them, modifications of the general time-table and curriculum are desirable if their development is not to be hindered, and if they are to become as valuable to society as they have it in them to become. One of the problems that await solution is the discovery of the special abilities involved in excellence in various activities.

The Supernormal Child

In the past we have seen the undesirable effects of pushing the superior children through the lower classes of elementary schools. The deflection of normal development into narrow channels of intellectual training has not produced the anticipated results. If pupils, however superior, have to remain in the junior school till they reach the age of eleven, there will be less pressure on schools to force the superior pupils along the usual channels at a faster rate than the normal. Instead it will be possible to modify the curriculum so that a deeper knowledge and understanding of the subjects studied can be obtained; by this we mean not the addition of facts to be learnt, but the more logical study of the subjects. In addition it will probably be desirable to make provision in the time-table of supernormal pupils for more recreational subjects. Because of their greater capacity for work, there is danger that they will overwork to such an extent that their physical and even their emotional health may suffer. Finally, with the reduction of drill methods should come definite teaching in methods of individual study, and opportunities for original work by these gifted pupils.

Reference has already been made to the use of intelligence and achievement tests as an aid in the selection of pupils of superior ability. It may be interesting to discover what percentage of the school population should be classed as superior. The problem is not an easy one, as superiority may occur in any one of many ways, but if we take the results of testing for general ability we find that about half the child population have Intelligence Quotients between 92 and 108, rather more than two-thirds come between 85 and 113, with rather less than one-sixth below and above these limits respectively. In general, teachers appear to agree that children with an Intelligence Quotient above 113 are of superior general ability. If we admit that there are a few pupils who are markedly superior in a specific direction and below the limit of I.Q. 113 in general ability, we may assume that, in an unselected group of pupils, about one-sixth should be superior. Of these a few would be markedly supernormal, the percentage probably being not more than three per cent of the school population in a large area.

The Subnormal Child

Reference has already been made to pupils who suffer from physical defects. Some of these disabilities are so serious that the sufferers cannot be taught at ordinary elementary schools; for these it is the duty of Education Authorities to arrange for suitable provision to be made. For those whose physical defects are slighter, it will be necessary to make modifications in curriculum or procedure according to individual needs, particular attention being given to prevent such pupils from developing a feeling of inferiority extending in all directions.

In this section we shall be concerned with children whose subnormality is mental. From a social point of view they include all children who are unable to learn to make independent and efficient adaptation to social situations, so that they need special surroundings or some measure of "external assistance, control, or supervision". All such children are classed as mentally defective. In Section I (1) of the Mental Deficiency Act of 1927, four kinds of defectives are defined:

(a) *Idiots*, that is to say, persons in whose case there exists mental defectiveness of such a degree that they are unable to guard themselves against common physical dangers.

(b) *Imbeciles*, that is to say, persons in whose case there exists mental defectiveness which, though not amounting to idiocy, is yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so.

(c) *Feeble-minded persons*, that is to say, persons in whose case there exists mental defectiveness which, though not amounting to imbecility, is yet so pronounced that they require care, supervision, and control for their own protection or for the protection of others, or, in the case of children, that they appear to be permanently incapable by reason of such defectiveness of receiving proper benefit from the instruction in ordinary schools.

(d) *Moral defectives*, that is to say, persons in whose case there exists mental defectiveness coupled with strongly vicious or criminal propensities, and who require care, supervision, and control for the protection of others.

At the lowest level there are individuals who can never learn to feed themselves, acquire clean habits, or to control even the larger muscles of the body. Above this are those who, as the result of careful training, can learn to control their bodies and limbs, and may advance to the production of the simplest types of handcraft. At a higher level are those who can learn to recognize simple words in print and to write from copies, though it is doubtful whether the time spent in acquiring the rudiments of reading and writing could not in many cases be better spent in acquiring other manual activities. The Report states (p. 66), "Hardly a single child who has a mental age below seven when he leaves school learns enough reading to make any use of it afterwards".

Above the levels just mentioned come children who by careful teaching, special methods and vocational training can be fitted for a place in the outside world, where they may be wholly or partially self-supporting. These are the children for whom the Special Schools are devised.

Diagnosis of the mentally defective.—We can, however, refer briefly to the methods of diagnosing the various degrees of mental defect.

FIRST.—Although mental tests can afford valuable hints as to the existence of mental defect, they cannot be relied upon exclusively. As a general guide, teachers will find useful the standards adopted by Dr. E. O. Lewis in his investigations for the Mental Deficiency Committee. He states that very few idiots examined in his inquiry had a mental ratio as high as 20; the upper border zone for imbecility was taken to be the mental ratios from 45 to 50, and that for feeble-minded children was taken as lying somewhere between 60 and 70.

SECOND.—Attention should be paid to amount of retardation in attainments in school subjects. Until recently there were no norms, i.e. standards, available for the different ages, so that estimates of retardation varied according to the estimators' ideas of the average attainments in school subjects of pupils of different ages. Even now, many are unfamiliar with the standard tests in school subjects and are consequently unable to give reliable information as to the retardation of pupils in educational attainments. In the investigation by Dr. Lewis, using Burt's norms, it was found that from the age of seven to that of fourteen the average number of years of educational retardation increased from 2·7 to 6·7 for mental defectives with some educational attainments, while the average estimate by head teachers for pupils of the same age increased from 1·6 to 3·3. This great difference between the estimates may have been due to reluctance on the part of head teachers to declare that their feeble-minded pupils were as poor educationally as the application of standard tests afterwards proved them to be, or it may have been due to unfamiliarity on the part of head teachers with the average attainments of pupils of a given age.

If these figures are reliable, and the number of children in the country whose mental ratio is below 70 is as great as is estimated, then the problem of providing suitable education for three per cent of the school population, who are educationally retarded for at least three years, is a heavy one. If these children who have not been sent to special schools are transferred to senior schools at the age of eleven, and if the special schools make a break at eleven, some of the pupils being sent to senior schools and some to senior special schools, it is obvious that special provision must be made for those children aged eleven whose average educational retardation is five years. To attempt to teach such pupils the ordinary school subjects when, after five years' schooling, they have not reached the standard of the average seven-year-old, is to waste the time and energy of teachers and to make the lives of the children themselves unnecessarily miserable. As information becomes available, special provision in large

schools can be made for the best type of training for these feeble-minded pupils. In rural districts, too, though the provision of suitable forms of training may be less extensive, the more individualistic methods used in the smaller schools afford compensation.

Moral Defectives

In the section on emotional life, reference was made to the generally accepted view that character is based on the innate tendencies (instincts), which are threefold in nature, involving cognition, emotion, and tendencies to respond. The general development of character means that the emotions are gradually organized into sentiments which are themselves more or less completely harmonized with each other. There are differences in strength of the different instincts in different individuals, and accordingly differences in the intensity with which various emotions are aroused. Attempts have been made to measure the degree to which individuals are affected emotionally, and though some progress has been made, such efforts are not much beyond the experimental stage. From the results obtained it appears that it may be possible to measure the general degree of emotional stability of individuals and thus establish norms for people of different ages. It is clear that some are over excitable and some are apathetic as compared with the average. From the ranks of these a considerable number of juvenile delinquents are recruited, though a number become delinquents through specific neuroses such as those arising from the inferiority complex. Dr. Lewis found that, in the case of many moral defectives, most of the defective's emotions were too strong for his control, or so feeble as to render him socially inefficient or morally callous.

Although teachers in ordinary schools are relieved from the necessity of dealing with pupils who are mentally deficient and morally defective, there are children who, either because their mental grade does not warrant their treatment as mentally deficient or because the degree of moral defect is judged not to be sufficiently acute to warrant their removal from the ordinary schools, will be found among ordinary pupils. Among these are the difficult cases, which will include not only those who are generally emotionally unstable or apathetic but also those in whom one or more emotion is excessively strong.

Some signs of these defects are observable in children in junior schools if the defect is great, but, as a general rule, the signs do not become overt till adolescence, when there is a general intensification of the emotional life of normal pupils.

It used to be thought that juvenile delinquency, which is more prevalent in early adolescence, was mainly due to mental deficiency. More accurate investigations have shown that though there is a correlation between juvenile delinquency and mental defect, the results do not support the view that mental defect is the main cause of delinquency. One may hazard the opinion that further investigations will support the view that

though mental deficiency may increase the difficulty of controlling emotions, yet defect in emotional control is the prime cause of delinquency.

It is impossible to give general advice as to the treatment in school either of the emotionally unstable or the emotionally apathetic, since it is necessary to deal with each case separately. One essential factor in treatment is correct diagnosis, and unfortunately we are at present unable to state early in the pupil's life what his emotional make-up is. It is to be hoped that teachers who are interested in this topic will keep records of suspected children from as early an age as possible, so that in time there will be available material which will enable teachers to diagnose incipient moral defect and to devise methods of treatment before the individual becomes adolescent.

CHAPTER IX

Fatigue in Schools

There is little that need be said on the subject of fatigue in schools. Psychologists have proved that fatigue is to be distinguished from feelings of boredom or restlessness. It is possible to feel tired and yet be capable of efficient work, or to feel fresh and yet be actually fatigued. The only measure of fatigue that can be called objective is the relative efficiency of one's efforts. The effect of fatigue is to produce a falling off in quantity or quality of work. Sometimes more work is done when one is fatigued but such work contains more errors.

Studies of industrial fatigue have shown that if short pauses are introduced in periods of continuous work, the organism is able to recuperate more completely than is possible if the work is divided into long spells. It is probable that the frequent pauses in school work are sufficient to enable most pupils to recuperate from the fatigue effects of a hard lesson. Investigations by tests at the end of the school day have shown that in general there is then little decrease in efficiency.

At the same time it is commonly reported by teachers that pupils cannot do the hard subjects as well at the end of the day as they can do them nearer the beginning, after they have settled down. This is probably due, not to fatigue, but to restlessness, boredom, or desire for change of occupation. It is clear that too much physical constraint results in physical restlessness. The writer's observations in primary and secondary schools have convinced him that the greater freedom of physical movement in the secondary schools is one of the causes for the comparative freedom from restlessness among pupils at the end of the day. Restlessness is more marked in classes which keep to the same classroom for most of their lessons than in classes which move from room to room. Hence the writer believes that it would be advisable for teachers of senior pupils

to try the effect of allotting rooms to subjects and allowing the pupils to move from room to room according to the subject of the lesson. This practice is probably desirable from another point of view. If pupils are constrained to line up and move only in response to orders, it is difficult for them to form habits of self-control. The writer has noticed that in a few elementary schools in which "lining up" and marching into school have been abolished, there has been an improvement in self-control in the pupils. It is of course impossible to prove that this effect is due to the greater freedom of movement, but the evidence is strong enough to warrant an extensive trial being given to the method in the senior schools.

Though physical constraint is one cause of restlessness it is not the only cause. Uninteresting lessons produce boredom, and hence less application to the work to be done. It is inevitable that some lessons will be less interesting than others to some pupils, and that some teachers will succeed better than others in making them interesting, so that in practice it is advisable to place the less interesting lessons near the beginning of the school session, because then the majority of the pupils will be less bored and less restless.

At the same time it should be noted that some pupils will be fatigued even at the beginning of the school day owing to external conditions. Absence of adequate sleep, excessive work before coming to school, worrying over school work or over other matters, are among the common causes of mental fatigue and, in extreme cases, of nervous breakdowns.

If school work is suitable for a pupil's abilities and the work is not done efficiently, teachers should suspect fatigue due to external conditions. Careful, tactful inquiries should be made, followed by appropriate action. An interview with a parent will often result either in the child being released from some extraneous work or in joint action being taken to free the child from emotional strain; in other cases it may be necessary to make use of the laws and by-laws relating to the employment of school children.

CHAPTER X

Vocational Guidance

With the raising of the school leaving age, it becomes more important that pupils do not make mistakes in their choice of a vocation than it was when they left school at an earlier age. The later a pupil leaves school the more important is it that he or she should not be placed in an unsuitable occupation.

One important factor which helps in this direction is the increased knowledge of the older pupils. With greater knowledge of what is involved in the various occupations, they are less likely to be influenced

by irrelevant aspects of the occupation. It is probable that if boys had at the age of ten to choose their occupations, a larger number would choose to be engine-drivers than would choose that occupation if their choice was deferred till the age of fifteen or sixteen.

Teachers can aid their pupils in choosing wisely by making their pupils familiar with the main conditions of work in the various occupations in which most of the pupils will be employed. Descriptions by teachers who have visited the various factories, workshops, and offices, accounts by workers actually engaged in the different occupations, and visits by pupils to the chief industrial and commercial businesses in the neighbourhood will all help pupils to acquire knowledge which will aid them in choosing wisely.

With the development of industrial psychology, it may become possible to determine what special abilities are possessed by the best workers in different occupations, and to discover means of ascertaining whether these are possessed by any individual pupil; but at present this knowledge is not available. Some guidance, however, is possible on the basis of an individual's general ability. Successful careers in the professions or in the responsible positions in the business world cannot be expected for individuals whose general intelligence is low. Unless an individual's general ability is high he should not be encouraged to prepare for a career in the professions or for responsible administrative positions in business.

If his general ability is medium he will not be handicapped if he seeks success in clerical occupations or skilled trades, provided of course the other necessary qualifications are possessed. If general ability is low the field of choice is much more restricted, since an individual of low general intelligence is likely to be fitted only for semi-skilled work or unskilled work.

Accurate knowledge of an individual's general ability will enable teachers to discourage pupils from trying to enter occupations for which their capabilities are not adequate, and on the other hand will enable them to encourage pupils to seek careers in occupations for which their ability is adequate, but which they or their parents had not considered.

If this knowledge is available at the time of entry into senior schools, together with knowledge as to the pupil's special abilities in academic, mathematical, or manual subjects, it will be possible to classify the pupils more efficiently than without this knowledge. We may assume that most of the pupils aged 11+ who are fitted for the professions will be transferred to secondary schools, so that few will be present in the senior or central schools.

In the senior schools most of the pupils will enter skilled, semi-skilled, and unskilled occupations. If the school is large enough for three lines of advance, it will probably be advantageous to classify according to type of ability rather than by general ability. One group would consist of pupils whose best work was manual; this group would contain some whose general ability is high as well as some whose general ability is

low. Another group would consist of those whose best work is linguistic. The third group might contain those who show no special ability in either direction, and might be divided into two main sections: those likely to enter semi-skilled occupations and those whose most useful work would probably be in the range of unskilled occupations.

Sectioning within each group would permit of different rates of progress being expected, as was suggested in an earlier paragraph. One advantage of this method of grouping would be that more attention could be given to vocational guidance, and at the same time pupils in any one group would not be labelled inferior to those in any other group.

In conclusion we may emphasize two points. On the one hand teachers and pupils need to remember that, however important preparation for and wise choice of industrial or commercial vocations may be, yet living includes many other activities. Unless pupils are able to take their share in these other activities, some distinctly social, others perhaps more distinctly individual, according to their capacities, their school life has not been successful. On the other hand, it is equally important to realize that each pupil must be encouraged and trained to become self-reliant and responsible to himself and to society for his own behaviour. Individual variations are great. Teachers in the senior schools have an opportunity both of breaking away from repressive drill and uniform methods, and of developing methods which will make the most of each individual's abilities within his own social group.

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SCHOOL CAMPING

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SCHOOL CAMPING

CHAPTER I

The Aims of the School Camp

"I confess I am a great believer in the value of School Camps."

The Rt. Hon. H. A. L. Fisher.

During the course of his speech in the House of Commons in August, 1917, the Rt. Hon. H. A. L. Fisher, the President of the Board of Education, introducing the great Education Bill, said: "We expressly empower Local Education Authorities to provide school camps and social training. . . . I confess I am a great believer in the value of school camps for boys between the age of 14 and 16."

The school period beginning from what is technically known as eleven plus, and particularly the period of from fourteen to sixteen and eighteen, is essentially the time for social training, for which purpose school camps are so eminently suited. Secondary schools have for many years organized their annual school camps, and during recent years the practice has spread very considerably. Central schools and elementary schools are following the same practice. The great social training work of the Boy Scout and Girl Guide movements has, from the first, recognized the enormous value of camp life. It is to be hoped that with the raising of the school age to fifteen, and with the extension of post-primary education, local education authorities will not lose sight of the fact that they were empowered by the Education Act of 1918 to provide school camps not necessarily confined to holidays. No post-primary school staff should be considered complete without at least one master or mistress qualified to organize a school camp successfully. Nor should the Training Colleges overlook the importance of the school camp as an educational instrument. Practical instruction in camp craft and camp organization should be provided in the Training College course for those students who desire to equip themselves for such important work.

This section of *The Teachers' Guide* is intended to fulfil a twofold purpose. It is a plea for the recognition of the school camp, in contrast to the ordinary holiday camp, as an essential part of our educational organiza-

tion, and it supplies information regarding camp craft and camp organization which will enable those who have had no experience in camping to enter upon their first venture with some degree of confidence and success. It does not claim to be an exhaustive treatise on camping. It is written primarily for school teachers and therefore is concerned mainly with *school* camps, but those interested in Scouting and Guiding will, it is believed, find much of special interest to them. The suggestions here set forth are the outcome of much careful study and long practical experience of various types of school camps; they are the result not only of a keen appreciation of the educational value of camping but of years of accumulated experience in camp craft.

Before coming to the consideration of problems of camp organization and camp craft, it will be necessary to consider carefully the special aim of the particular type of camp we have in mind. There is necessarily much that is common in the organization of all types of camps, but the success of any camp depends very largely indeed upon the degree to which the camp organization has been adapted to meet its special purpose.

In what follows it must not be thought that we underestimate the value of the purely holiday camps. We do not overlook the fact that such camps secure for the less fortunately placed young people of our crowded industrial towns a fortnight or so in the country or at the seaside under the healthiest conditions possible. We do not overlook the fact that even the school camp, though not primarily arranged for such a purpose, does ensure for certain boys and girls a healthy holiday which otherwise, owing to parents' lack of means, would be impossible for them. We do not forget that many, if not the majority, of those who attend the school camp secure a holiday under better and healthier conditions than they would obtain by spending the same period with their parents at a popular seaside resort. We do not underestimate the health value of the camp with its open-air life, its plain wholesome food, its regular and sensible hours, and its happy care-free atmosphere. All such advantages do not constitute the main purpose of the school camp—they are rather in the nature of incidental, though of course very important, advantages.

When we come to consider the school camp we have to keep in mind that such a camp is intended to be—or should be—a part of the normal school organization, complementing as well as supplementing the usual school work. The health and well-being of every schoolboy is of course one of the chief concerns of every thoughtful schoolmaster, and the school camp can be regarded as a means of supplementing the work of the playing fields, the gymnasium, and the outdoor lessons of the normal school curriculum. The school camp, however, should aim not merely at supplementing the normal school work but, as was said a moment ago, of complementing it. It should be regarded as an educational instrument utilized for the purpose of completing the educational process begun in the school. In this sense the special purpose of the school camp is of a twofold nature. It should in the first place be regarded as a means for social training, and in the second

it should aim at providing ample opportunity for what is known as education for leisure. As a social training centre the school camp will assist towards completing the education of the boy—particularly the day-school boy. And in so far as the school camp provides opportunity for education for leisure, it will be supplementing the ordinary work of the school.

Put into other words, the aim of the school camp is both communal and individualistic. It endeavours to provide, on an intensive scale, opportunities for teaching the young camper the art of being a useful, happy, and contented member of an organized community, and at the same time provides him with opportunity for further individual development—particularly in the direction of teaching him the right use of his spare time.

Every well-organized school will, of course—quite apart from school camps—keep this twofold purpose before it: the development of corporate life and the development of the individual, both for hours of work and hours of leisure. At the same time we realize how great are the obstacles in the way of attaining this twofold aim—particularly in the case of many of the elementary schools, with their almost complete absence of playing-fields and their totally unsuitable school buildings. The school camp can, however, and should, do much to counteract these disadvantages and assist in realizing what Sir Michael Sadler terms “ the ideal of individual and communal life ”.

The School Camp as a Social Training Centre

The school camp, then, must be regarded as a community, and each camper must realize from the moment he sets out on the journey to the camp site that he is, for the time being, a member of an organized society. The motto must be “ Each for all and all for each ”, and every individual must be made to realize that the good of the whole camp is the main concern. The camping tradition of the school—and no school can hope to get the maximum benefit from its camp until a series of annual camps has fostered a healthy camping tradition—will help very considerably towards establishing the desired camp-spirit. In the camp the boys will learn the privileges and responsibilities of service. They will learn to appreciate that some must be leaders and others must be “ hewers of wood and drawers of water ”. They will learn, moreover, that the best leadership calls for ready and willing service, whilst even the hewing of wood and drawing of water are not so much menial labour as dignified service. They will learn much more regarding leadership. They will learn that hardest of all lessons—to give place to the better man. On the playing-fields this is, more or less, readily conceded, and for reasons which are usually obvious, being largely a question of individual skill. But in camp the personality and not the skill of the leader is the deciding factor. And it is in this direction that camp reveals unsuspected weaknesses and strengths. In the emergencies of camp life, in its call for sustained effort and hard work, initiative and self-reliance, and, above all, in its demand for cheerful

comradeship, camp life reveals in all its nakedness the personality of the individual.

It is in this sense that the school camp is a social training centre. It provides opportunities for self-government and puts almost every plan to the immediate test. It gives scope for the development of character, and also puts character to the test. It teaches the value of human companionship. In short, it teaches the art of living with, and for, others.

Further the school camp is, par excellence, the place which calls for adaptability. The camper not only has to adapt himself to new and strange surroundings, to a novel mode of living and to unexpected emergencies, but he has to adapt himself to the habits and manners of his fellow tent-dwellers. Above all he has to adapt himself to living in close association and on intimate terms with his teachers.

At camp, as nowhere else, perhaps, many a boy begins to learn to be at ease in the presence of those in authority. He acquires, possibly for the first time, just those social qualities the absence of which so often handicaps the promising boy. He gains in self-confidence and self-respect; he acquires the art of making himself acceptable in the company of his elders. He loses his diffidence and self-consciousness. The camp environment may, and does, encourage many a boy to overcome the limitations imposed upon him by his home environment. It is not until we *live* with our boys that we begin to realize how serious this limitation may be and the extent to which the home circumstances narrow a boy's outlook, arrest his ambitions, and destroy all self-confidence in spite of the often heroic sacrifices which parents make to give children a good education.

Teaching the Use of Leisure.—The other main purpose of the school camp—viz. the provision of means for teaching the right use of leisure—recalls the words of the gallant explorer, Captain Scott, in the letter he addressed to his wife shortly before his death. His last thoughts were of his young son. "Above all," he wrote, "he must guard, and you must guard him against indolence. Make him a strenuous man." A little earlier in the same letter he had written, "Make the boy interested in natural history if you can; it is better than games; they encourage it at some schools. I know you will keep him in the open air." Here are words pregnant with suggestions for those who would organize school camps. "Guard him against indolence." "Make him a strenuous man." One could not have two finer maxims for a school camp. Whatever may be said in favour of the purely holiday camp, the school camp will prove a failure if ample provision is not made for a reasonably full programme. Over-organization is, of course, a mistake. There should be some time in which the boy is free to do just as he pleases, and such time is by no means wasted. But the strenuous camper is the happy camper—the loafer is, invariably, the discontent. The school camp should make each boy realize the joy of the really strenuous life. By this one does not mean physically strenuous. Camp life is necessarily a physically strenuous life. On the other hand, one can expend a good deal of energy in merely loafing. Mere



REAL NATURE STUDY



A CANVAS LABORATORY

purposeless pursuits are in the end unsatisfying. The camp organizer who finds his young camper becoming discontented may be fairly certain that the boys have insufficient to interest them. "Nature herself requires," said Aristotle, "that we should be able not only to work well but to use leisure well. . . . Both are required."

Our aim then being to encourage the right use of leisure, how can it best be attained? Two methods are open to us. A camp officer may be appointed whose special function will be to arrange daily programmes. He will organize daily bathing and boating parties, he will arrange for cricket and football, rounders and other organized games; he will organize walks to places of interest in the neighbourhood and all-day excursions to more distant parts. If funds permit he will set apart one marquee for indoor recreations and thus make provision for a rainy day. He will also give every encouragement to individual boys to pursue their hobbies. He will arrange sing-songs around the camp-fire or organize more elaborate camp concerts. In short, he will set out to keep the boys amused. He must, however, be prepared to be disappointed. Boys soon get tired of being amused. One recalls again the great explorer's last appeal: "Make the boy interested in natural history if you can; it is better than games." Can there be any doubt but that Scott's anxiety for his boy's upbringing was that he should be encouraged to follow some all-absorbing pursuit rather than devote his time to mere pleasure and excitement? And those who have had experience of both types of camps—the one in which spare time is devoted almost entirely to the pursuit of pleasure, games, excursions, and concerts, and the other devoted mainly to the pursuit of some definite object—will without doubt say of the latter "it is better than games".

CHAPTER II

Planning the School Camp

The school camp then should be planned as an expedition. The purpose of the expedition can be varied from year to year, or, if the school is large enough, several expeditions can be arranged having different objectives and undertaken by different sections of the school. Much can be said in favour of each school pursuing one objective year after year, possibly changing the camp site as the pursuit of their objective requires. Thus camp will become for one school a series of natural history expeditions. Another school will perhaps organize camps for the purpose of undertaking a simple but interesting series of regional surveys. Much, of course, will depend upon the predilections and special interests of those undertaking the camps, for it is obvious that the success of such camps depends very largely on the presence of the enthusiast and expert.

During the last few years the writers of this article have organized

natural history camps for boys of twelve to thirteen years of age. An excellent site was secured in the New Forest, and for the time being the boys, numbering about thirty, were sent on a natural history expedition. The camp note-books testified to the enthusiasm and industry of the boys. More real nature study was accomplished in this way in one week than was possible during a whole term in the artificial environment of the laboratory and form-room. Ample evidence was forthcoming that a real, keen interest in natural history was being developed. Incidentally a good deal of camp craft was learnt, and boys who have attended these camps have proved to be amongst the keenest of campers at the annual summer camp. These natural history camps are now regarded as part of the normal work of the summer term.

A word of warning, however, is necessary. It is possible to over-organize such camps. The aim should be to arouse interest, not to cram facts. The time-table, too, should be as informal as possible. The boys should be encouraged to become keen explorers into the realms of nature.

It is true, however, that such a camp can serve the very useful purpose of supplementing the school curriculum without in any way losing any of the delights of camp life. The idea is, in fact, capable of considerable development and, provided the necessary camp equipment can be found, there is no reason why several such camp expeditions should not be organized by the same school. One hears of schools in Germany scattering abroad during term-time on such expeditions, and there is ample scope in this country for experimenting in this direction. Camp sites, for instance, can be found in centres rich in archæology and history, and whilst one section of the school is away on a natural history expedition another section might be sent on an archæological expedition. Or, if two such camps at the same time were not possible, they might follow in consecutive years. A school taking camp seriously and aiming at the twofold purpose of utilizing camp as a social training centre and as a means for developing new interests and encouraging the right use of leisure, could well develop a series of expeditionary camps suitable to the various age groups of the school. For secondary and other post-primary schools a series of camps such as the following might be arranged.

FIRST YEAR.—A Natural History Expeditionary Camp aiming chiefly at arousing a keen love of nature and appreciation of natural beauty as well as a taste for open-air life. Special attention would, in this first-year camp, be given to teaching camp craft with a view to encouraging boys to become useful and enthusiastic campers.

SECOND YEAR.—An Archæological Expeditionary Camp giving an intensive course of study in the history of some well-defined area, and aiming at arousing a keen interest in the history of ancient days. Archæological Societies are occasionally to be found ready to welcome the assistance of parties of schoolboys willing to undertake excavations, but such work is not essential to the success of this form of camp.

THIRD YEAR.—A Regional Survey Camp aiming at a systematic study

of the geography, history, geology, and industrial life of a well-defined district. Such a camp can best be undertaken by older boys, and greater interest will be aroused if care is taken to select a district which affords a complete change from the home environment.

FOURTH YEAR.—A Foreign Expedition. Continental camping is described at some length on pp. 251-3.

A series of such camps can be arranged either to cover a cycle of four years or as annual camps taking place each year, the younger boys being taken on the Natural History Expedition, the next age-group attending the Archæological Expedition, and so on. The series, as given, is only intended to be suggestive, but there is no reason why the English schools should not follow the lead of some of the German schools, and during part of the Summer Term send a section or even the whole of the school on some such expeditionary camps. In any case the school camp organized as an expedition, making as it does a strong appeal to the young campaigners' love of adventure, is not only immensely popular but does, undoubtedly, do much in the direction of arousing fresh interests, kindling new sympathies, and giving direction and purpose to leisure hours.

CHAPTER III

Camp Organization and Routine

We come now to the consideration of questions of camp organization and camp craft. The first problems which the would-be camp organizer has to settle are those relating to (i) the size of the camp; (ii) the staff required; (iii) the choice of the site; (iv) camp equipment.

These constitute the problems which require attention at the earliest possible moment and well in advance of the time for departure for the camp site. At a later stage in the preparation, but still well ahead, problems relating to (i) camp food, (ii) health and sanitation, (iii) camp routine, have to be settled. We will take those problems in the order given, postponing almost to the last the question of camp finance—not because it is the last problem which has to be considered by the camp organizer, but because, to a very large extent, the cost of camp is determined by the other factors.

Size of Camp—Opinions vary as to which is the more desirable—the large camp numbering a hundred or two hundred under canvas, or the small camp limited to not more than fifty campers. The former, with its impressive lines of tents and its large marquees, certainly can become a very dignified and superior type of camp. But such a camp demands the best possible organization and perfect camp machinery.

The chief advantages of the large camp are (i) economy and (ii) greater variety of occupations for the campers. In such a camp the stores can

be purchased on a larger scale, and therefore at a cheaper rate, whilst average waste is reduced. Camp equipment, and especially that portion of it which has to be hired, is less costly per head in the large camps. If the services of a professional cook are required, the cost for such service does not increase in proportion to the number attending the camp.

When, however, we come to consider the school camp aiming at fulfilling the purposes already discussed, everything is in favour of the small camp of about thirty to fifty boys. A more homely atmosphere prevails, the importance of service is emphasized, and the whole spirit of camp is entirely different. The relationship between master and boy, too, is much more intimate in the small camp. All that has been said regarding camp as a social training centre can best be appreciated in the small camp. The large camp is a canvas town—the small one more closely resembles a family. Above all, if camp is to be organized as an expedition, as has been advocated, then limitation of the number attending is demanded.

Nor need we attach too much importance to the relative cost per head. If certain economies are possible for the large camp, there are others which can be effected in the small camp. Paid help is less a necessity, the equipment can be on a smaller scale, whilst, if it is impossible to have the financial advantage of purchasing food in large quantities, there are occasions—such as blackberrying and fishing expeditions—when food for the whole of a small camp can be provided for nothing. And, somehow, gifts from generous neighbours have a habit of finding their way into the store tent of the small camp and rarely into that of the large tent over which the paid cook presides.

On the whole, the balance is perhaps in favour of the small camp, whilst for the school camp organized as an expedition, as has been suggested, the small camp is unquestionably to be preferred. If, however, staffing and other factors make a series of small camps out of the question, then some of the advantages of the smaller camps can be secured by arranging the camp as a group of encampments—each group having its own identity as an expeditionary camp, but sharing a central stores and drawing from common supplies. For a school with a well-organized House-system there is much to be said in favour of this type of large camp. One field is hired, but each "House", under its appointed House Master as Camp Chief, becomes a self-contained unit. The school camp planned on these lines can secure the advantages of both the small and the large camp, and in addition does much to strengthen the House system.

One point should be emphasized. It is very inadvisable for those attempting a "First Camp" to deal with large numbers. Campers have to learn by experience, and any attempt on the part of inexperienced officers and boys to deal with large numbers might prove discouraging and even disastrous. Moreover, as was mentioned earlier, a school's traditional camp spirit is a most important factor in a successful camp, and camp tradition is a matter of slow growth. Two or three annual camps on a comparatively small scale not only will give opportunity for beginners

to gain experience, but will do much to lay the foundation of a healthy camping tradition for the school. Even the most ardent enthusiast should be content at first with success on a small scale.

Camp Staff.—After the size of the camp, the next, and almost the most important problem to be settled, is that of camp staff. Experienced campers will agree that there is greater danger in having too many than too few camp officials. No camper, of course, should attempt to run a camp single-handed. However happy he may be amongst boys, there will be times when the companionship of an adult will be to his own advantage. Moreover, the Camp Chief must be ever on the alert, even in a small camp, and he needs not only the companionship, but the active assistance of a brother officer. The Camp Chief must run no risks of being overworked, for upon his health and good spirits the success and happiness of the whole camp largely depend. On the other hand, "too many cooks spoil the broth" in camp as elsewhere, and the would-be Camp Chief is wise who takes with him only such officers as are absolutely necessary. He should be certain too that his officers are in complete accord with the objects of the camp. He should not take the "handy man" merely because he may be useful in an emergency, or the "good sort" because of his companionship and ability. Good companionship, and ability to use tools properly, are attributes not to be despised, but the inexperienced, though ready and willing, helper, often proves the more useful camp officer.

Four to five officers are sufficient for camps numbering up to a hundred in attendance. They are the Camp Chief or Commandant, the Adjutant, the Quarter-master or Storekeeper, the Cook, and the Excursion Officer or Expedition Leader. One of these officers should be qualified to undertake First Aid.

The Camp Chief or Commandant not only sets the tone but also determines the underlying purpose of the camp. Needless to say he must be a camp enthusiast, though not necessarily an experienced camper. He should undertake but little of the ordinary routine, remaining as free as possible to give attention to the larger problems of camp life. His mere presence should radiate kindness, good humour, and above all cheerfulness, in any and every emergency. On his personality depends the creation of the right camp spirit, and, whilst cheerfulness is his greatest qualification, he must not hesitate to enforce strict discipline.

In the large camp the Adjutant is the Commandant's right-hand man, to whom he will be responsible for the discipline of the camp. He sets the machinery going and keeps it going. The successful Adjutant must, of necessity, be an experienced camper skilled in camp craft. The school undertaking its first camp should possess at least one such experienced camper—or, if not an experienced one, at least one who has attended a camp for the purpose of studying camp organization. Most camps will extend a welcome to such visitors, and much can be learned in a very short time by the inexperienced, but enthusiastic, tenderfoot.

The Storekeeper, or Quarter-master, is responsible for transport, equipment, and food, and is a most important officer from the time active preparation for camp commences until, and for some time after, its conclusion. His main qualifications are an even temper, a sense of humour, business ability, and tactfulness in dealing with others. He will be responsible for making all arrangements with the Railway Company and for the camp equipment. He will be responsible for the purchase, keeping, and issuing of stores, and he must see to it that the store tent is one of the best kept corners of the camp. On the success of his work the health of the camp depends—physical and financial health—but especially the physical.

If the Camp Chief is responsible for the good tone of the camp, the Adjutant the discipline, and the Quarter-master the health, the Camp Cook is responsible for the spirit of contentment amongst the campers. In the very small camp, boys themselves will be willing to undertake the cooking operations and will find contentment even in their disasters. But the school camp undertaking expeditions, or the large camp designed as a holiday camp must either engage an experienced cook or secure adequate voluntary help. Boys, of course, will assist in the camp kitchen, and every encouragement should be given to them to gain experience in camp cookery.

The Excursion Officer, or, if the camp is planned as an expedition, the Expedition Leader, should be a man of fairly wide interests, including a keen interest in, and knowledge of, some branch of Natural History. The purpose which the camp aims to fulfil will of course determine the special qualifications required of this officer. An enthusiasm for his special subject, a passion for outdoor life, and a real and understanding interest in boys and an appreciation of their love of adventure, are, however, the most essential qualities.

In the small camp numbering from thirty to fifty boys it may be necessary to combine certain of the offices. The Camp Chief, for instance, can undertake the duties of Expedition Leader, or he may dispense with the services of an adjutant. A minimum of three camp officers—the Camp Chief, the Storekeeper, and the Cook—is, however, essential.

The boys provide the equivalent of non-commissioned officers—Camp Captain, Group Leaders, and Tent Leaders. The utmost care should be exercised in making these appointments, which should be made well in advance of the time of departure in order that the boys can be carefully instructed as to their special duties. It is most essential that these leaders should appreciate the underlying purpose of the camp, for the camp spirit is to a very large extent the result of their work. The Camp Captain will as a rule be the School Captain, and both the school and the camp will be fortunate if the successful School Captain proves to be equally successful as a Camp Captain. So much depends on this individual, however, that the Camp Chief should not hesitate to appoint another boy as Camp Captain if the School Captain is not likely to prove a good camper. Group Leaders, about four in number, are required only in the

larger camps. They are responsible to the Captain for the general well-being of each line of tents. The Group Leaders and the Camp Captain should share a tent at the head of the lines. The Tent Leaders take their orders from the Group Leaders, to whom they are responsible for the general welfare of their tent.

The Camp Captain, Group Leaders, and Tent Leaders should form a Camp Committee for the purpose of organizing amusements and recreations, as well as certain matters of discipline. Such a committee should be free to make suggestions to the officers regarding the general well-being of the camp. Bearing in mind that one of the aims of the school camp is the development of powers of leadership, as much scope as possible should be given these leaders. They should be conscious of their influence in the camp and be encouraged to exercise their initiative as much as possible, willing service being recognized as the most important factor in successful leadership. Good leadership ensures healthy self-discipline. Camp regulations should be as few as possible, and regulations which are necessary should be of the positive rather than the negative type. The right camp spirit will not be prevalent if camp is ruled by a series of "Thou-shalt-not" orders. If good comradeship between masters and boys prevail, the latter will be willing to respond to any appeal made to them provided it is made quite clear what is expected of them. Certain rules, such as those relating to bathing and boating, must, of course, be strictly enforced, and in this connexion it is wise to advise parents beforehand that boys are only accepted for camp on the definite understanding that any wilful breach of rules likely to endanger the welfare of the camp as a whole, or the safety of individuals, will entail the immediate return home of the offender. Parents should be asked to supply the address which will find them during the camp, should such or any other emergency arise. Such an understanding will act as a very effective deterrent, and rarely, if ever, will it be necessary to resort to such measures.

Choice of a Camp Site.—The choice is determined largely by financial considerations and by the purpose of the camp. Railway companies treat camping parties quite generously, but even so if funds are not too plentiful the choice of a site is necessarily restricted.

The main factor, however, governing the selection of the site is the purpose which the camp aims at fulfilling. If a holiday camp, pure and simple, is desired, then of course a seaside camp is unquestionably the best. For such a camp the site should offer in addition to sea-bathing and seaside amusements, a complete change of environment. It is a mistake to take town boys to the popular seaside resort, offering little more than further facilities for street loafing and suburban amusements. Such boys should be transported to the quiet old-world seaside town which, whilst providing ample facilities for sea-bathing, boasts neither a concert party nor a cinema, but can claim to be a good centre for rambles and excursions to places of interest.

If the school camp is planned as an expedition, then much more work

may be involved in finding a camp site, and the best advice that can be given is to set about the task of finding such a site as early as possible, after having determined the nature of the expedition. For a nature study camp a site in one of the great forests, with its wealth of material, is ideal, whilst for boys a forest possesses both charm and fascination. If an archæological camp is desired, the would-be camper would be well advised to get into touch with the secretary of a local archæological society. For the regional survey camp a seaside camp is still a possibility, and is to be preferred if part of the survey is to include the study of an industrial area. After a day spent in the factories of some crowded manufacturing town nothing is more refreshing than to return to the tents pitched on the cliffs.

For the large camp, organized as three or four encampments, a centre offering a variety of interests is desirable. For such a purpose a town like Stratford-on-Avon is particularly attractive. The town itself teems with interest, whilst its rural beauty is almost unsurpassed. Within easy reach lie a host of interesting places—Warwick and Kenilworth Castles, the magnificent Cathedral of Gloucester, and Tewkesbury Abbey Church, one of the finest specimens of Norman architecture this country possesses, all eloquent of the glories of the past. Combined with this the town is an admirable centre for the study of industrial England. Many such centres can be found offering rural amenities and surrounded by places of interest.

Once the purpose of the camp has settled the whereabouts of the site, attention can be turned to points common to all good camping fields. In this connexion it is well to remember that it is unwise to accept a site without visiting it. Further, the best time for seeing the site is mid-winter, or, if this is not possible, the site should be visualized as it would be at its worst, after a few days of fierce winds and heavy rain.

The most important point of all is the water-supply, which should be within easy reach. Constant water fatigues may easily become a source of irritation. The galvanized sanitary dustbin makes a cheap and excellent storage tank and can be filled night and morning without inflicting undue hardship on the fatigue party.

The next point is the nature of the sub-soil. In a sandy or gravel soil the disposal of kitchen waste and washing water will give no trouble, whereas a clay subsoil entails endless labour, and a rocky soil makes latrine digging difficult.

A belt of trees on the windward side is a highly desirable background for the big marquee. Tents should not be pitched under trees; the constant drip, drip, drip during wet weather is annoying, and branches have a knack of breaking off during a storm.

Ground which has, at some distant time, been ploughed and then turned into pasture, leaving the surface in gentle billows, should be avoided. It should be remembered, too, that boys have to lie in the tents like the spokes of a wheel and no one can sleep comfortably with his feet on a level higher than his head. A level patch, therefore, is required for each

tent. If a large marquee is to be part of the equipment, it too should be pitched on level and even ground, otherwise there will be constant trouble with stools and tables.

A good-sized field is desirable. A medium-sized camp of 50 to 100 boys requires about an acre of ground for its canvas, and there should be three or four acres suitable for games purposes. The canvas should be arranged compactly, the kitchen near the water-supply, the messing marquee or tent near the kitchen with the store tent adjacent.

When viewing possible camp sites it is a good plan to enter into a notebook details as set out below. It is unwise to come away with just a general impression only, to find out on returning that some important item has been forgotten.

SCHEDULE OF PARTICULARS OF CAMP SITE

1. Situation and full postal address.
2. Name of owner.
3. Area of field.
4. Shape of field.
5. Nature of soil; depth of mould.
6. Surface (level, hummocky, ridges?) and general slope.
7. Protection: (a) Number and position of trees in the field.
(b) Nature and height of hedges.
(c) Position of sheltering trees surrounding field.
(d) Slope of field.
8. Prevailing wind and protection therefrom.
9. Distances: (a) From nearest railway station.
(b) From nearest village.
(c) From beach.
10. Water-supply: (a) Distance from site and name and address of water company;
or (b) Distance of nearest well.
11. Transport: (a) Name and address of agent.
(b) Charges.
(c) Kind of vehicle—farm carts or motor lorries.
12. Food-supply: (a) Name and address of nearest farm.
(b) Can the farm supply eggs, milk, potatoes, vegetables?
(c) Name and address of nearest butcher and baker.
13. Rent of field.
14. Amusements: (a) Nature of beach.
(b) Nature of bathing—safe, doubtful, dangerous.
(c) Boating facilities and cost of hire.
(d) Games facilities.
(e) Name and address of charabanc proprietors with particulars of excursions.

Camp Equipment.—A new bell tent (1930) costs £6 and the hire

for August will not be less than thirty shillings. The life of such a tent may easily be from fifteen to twenty years provided it receives the necessary skilled attention and good dry storage is available. From this one illustration it will be readily seen that it pays to purchase camp gear. It is possible to hire almost all that is needed to equip even a large camp, but every school should aim at purchasing the greater portion of its equipment. If funds do not permit of this for the school's first camp, some portion of the equipment should be purchased each year. Local Education Authorities are empowered under the Education Act of 1918 to assist school camps. Funds can also be raised by means of school concerts, whilst the possibility of making some of the camp equipment in the manual training shop should not be overlooked. Pride of possession in its own camp equipment helps considerably in establishing camping tradition and camp tone.

Two important points, however, must be kept in mind if camp equipment is purchased and not hired. The first is that good dry storage is absolutely essential, and all gear should, especially canvas, be thoroughly dried before being stored. The second is that the proper time for overhauling and repair is immediately after return from camp and not just before the next camp. Provided camp equipment is properly cared for, a school can, in a very few years, be in the fortunate position of having only to meet charges for transport and the cost of food supplies. The camp charge per boy is then sufficiently low to make it possible for the least fortunately placed boys, to whom of course the fortnight's camp is a tremendous boon, to attend. The following details regarding equipment will be found useful.

General Equipment.—Tents and marquees. Opinions differ regarding the suitability of the bell tent as compared with the ridge tent. For the latter it is claimed that it is light and can be easily erected. A ridge tent, giving accommodation for eight boys, weighs only 28 lb. as compared with 50 to 60 lb. of the bell tent—an important item when transport costs come to be considered. The ridge tent enthusiast points out that the ventilation of the bell tent is difficult in bad weather, it demands a perfectly level site and requires 42 pegs for pitching it. Those who favour the bell tent, however, urge that no tent of equal sleeping accommodation can stand up to rough weather so well as the bell tent. There is, too, something pleasing to the eye about the lines of bell tents, and somehow or other the bell tent has a fascination for boys. As regards canvas required it may be taken that six boys in a bell tent are luxuriously provided for, seven are comfortable, eight are beginning to find their belongings mixed up, nine grouse, and ten are decidedly uncomfortable.

Large ground sheets are not recommended. They are not easily moved from the tent and therefore do not add to the cleanliness of the floor. Each boy should be supplied with, or provide himself with, a ground sheet.

Marquees are necessary for a camp aiming to fulfil some definite educational purpose and unable in consequence to devote time to do its

own cooking. A large mess tent or marquee is essential. A marquee 40 ft. by 24 ft. will give comfortable accommodation for 80 boys. For 100 to 150 boys a marquee 60 ft. by 40 ft. will be required, and for 200 boys one measuring 80 ft. by 40 ft. will be necessary. If the marquee is to be used for camp concerts, it can be adequately lighted by means of a pressure paraffin lamp of the Kitson type. These can be obtained giving light of 300, 600, or 1200 candle power. They are not difficult to manage and can best be suspended from a gallows erected between the two main uprights of the marquee.

The marquee should be furnished with either folding or trestle tables,

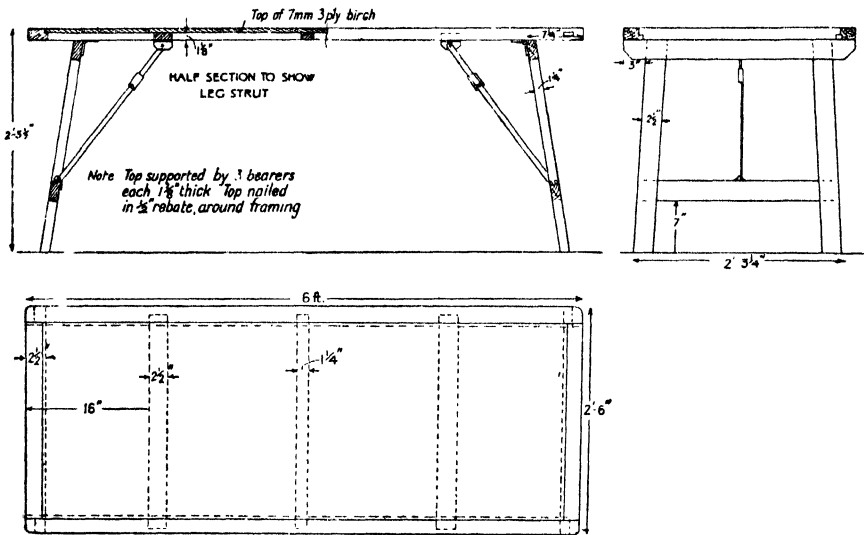


Fig. 1.—Camp Table

preferably the former (for construction, see fig. 1). Such tables should be 6 ft. by 2½ ft. and as light as possible. A three-ply top let flush into a frame with patent folding iron struts fixing the legs makes a perfectly rigid table. The wood should be given two coats of solignum, and, if tablecloths are regarded as unnecessary refinements, a serviceable polished surface can be obtained by rubbing in repeated small doses of linseed or olive oil.

Stools can be of the Army pattern, but are much improved by screwing a piece of wood 12 in. by 2½ in. across the bottom of the legs. This prevents them toppling over and in no way interferes with folding.

A store tent will be required. In the large camp a marquee will be necessary; for the small camp a bell tent will suffice. Packing-cases make excellent cupboards, but should be raised from the ground. New sanitary dustbins make admirable storage bins for flour and sugar. Bread, which in all probability will be delivered quite new, should be stored on a suitably constructed rack.

Considerable trouble will be saved if cutlery and crockery is included

in the general camp equipment. Each boy will need two plates, a mug, and a knife, fork, and spoon. If each boy brings his own, a considerable outlay will of course be saved, but the mess tables will look as though an old curiosity shop had been raided, and there will be endless squabbles about *my* knife, *my* fork, *my* spoon. To insist on good table manners, and to impress upon the campers that the supply of their neighbours' wants rather than their own should be the first care of each individual, is no small part of the social training of camp life. The mess tent equipment therefore should not be of the rough-and-ready kind. Crockery and cutlery should be of a good serviceable pattern, and the addition of table linen need not be regarded as an unnecessary refinement. The general appearance of the mess tent should invite good manners at table.

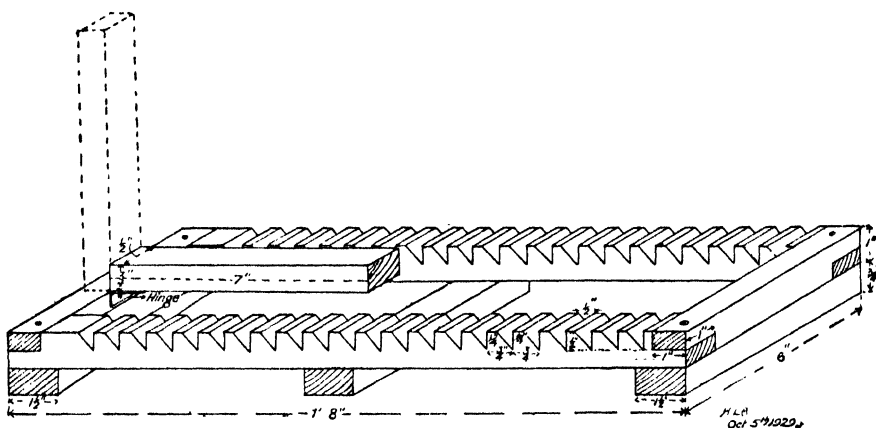


Fig. 2.—Plate Rack

Other items to be included in the general equipment are as follows:

- (i) Tool chest, containing screwdriver, hammer, chisel, brace and bits, pliers, box-opener, pincers, saw, axe, an assortment of nails and screws, tin-opener, corkscrew.
- (ii) First Aid box, containing medicinal paraffin, medicated lint, iodine, bandages of various widths, splints, brandy, tourniquet, insect bite lotion, ammoniated quinine, asperin, collodion flex, cascara.
- (iii) Storage bins for flour, sugar, and oatmeal. For goods to be stored in smaller quantities—rice, sago, tea, coffee, cocoa, &c.—large Glaxo tins or Virol tins are excellent.
- (iv) A ten-gallon water carrier on wheels and two galvanized iron sanitary bins for water storage—one for drinking and the other for washing purposes.

Kitchen Equipment.—The good cook knows exactly what he requires by way of equipment, and as the happiness of the whole camp depends very largely on the cook's services, it is sound policy to make sure that this

important person's entire wants are supplied. The equipment will include enamelled iron jugs and bowls, aluminium kettles and saucepans, frying-pans, plates and dishes, knives, forks, and spoons, wooden spoons for stirring, ladles, one or two zinc baths and one or two pails, a cutting board, pudding cloths and strings, muslin for covering food, washing up swabs, and tea-cloths.

A bread-cutting machine is a necessity in a large camp, but as no fool-proof variety is yet on the market its use by boys should be forbidden. A potato scraper will save much tedious work.

Sanitary Equipment.—The sanitary equipment will include washing bowls, latrines, and rubbish destructors.

1. **WASHING BOWLS.**—Washing bowls should be provided in the proportion of one per tent. The ordinary enamelled basin gets chipped, rusts, and is soon useless. Tinned iron ones are worse. Zinc bowls are far more serviceable. They can be cleaned readily and they last a long time. They can usually be made locally, a useful pattern being 12 in. in diameter at the top and 8 in. in diameter at the base, and 4-5 in. deep. These telescope conveniently and can be packed for storage and transport in a box specially made for the purpose.

2. **LATRINES.**—An unauthorized and unexpected visit to the latrines of a camp will convey to the initiated a wealth of information. One glance and the status of the camp can be allotted with unflinching accuracy.

What then should an inspection reveal?

- (a) Latrines situated on the lee side of the field, remote from dining-rooms, kitchen, and store.
- (b) Properly screened compartments (see fig. 3).
- (c) A covered bin of sifted dry earth, shovel at side.
- (d) Toilet paper in box, secure from rain.
- (e) Trench not too wide.

The need for properly screened compartments is imperative. Many boys suffer untold agonies rather than relieve themselves in the public gaze. There should be no false modesty about the matter, and the first night in camp the O.C. or Adjutant should impress upon the boys the necessity of a daily evacuation, and they should be trained to report to the M.O. (in this case the First Aid Man) when Nature requires assistance.

It is a great advantage, especially in soils inclined to be of a sticky nature, to have a separate latrine set apart as a urinal only. The number of latrines desirable is 10 per cent of the number of boys in camp. At night to prevent fouling the ground, it is a good plan to place a bucket, tarred inside, at the end of each line of tents.

3. **INCINERATOR.**—Boys, if properly trained, will take a pride in keeping the field clean. In a good camp one will not see a scrap of paper the size of a postage stamp littering the field. To attain this pitch of perfection a simple and efficient destructor must be provided. An old dustbin, that has seen its best days, makes an excellent incinerator. With the pointed

end of a pickaxe, pierce a series of holes $\frac{1}{2}$ in. in diameter and about 3 to 4 in. apart right round the bin 2 in. from the bottom, then another row 4 in. above the first one. Into this receptacle goes everything that should be destroyed, it being clearly understood by all that everyone makes it a point of honour never to pass by any waste paper or other debris, but to pick it up and either take it straight to the incinerator or put it in his pocket to be got rid of later.

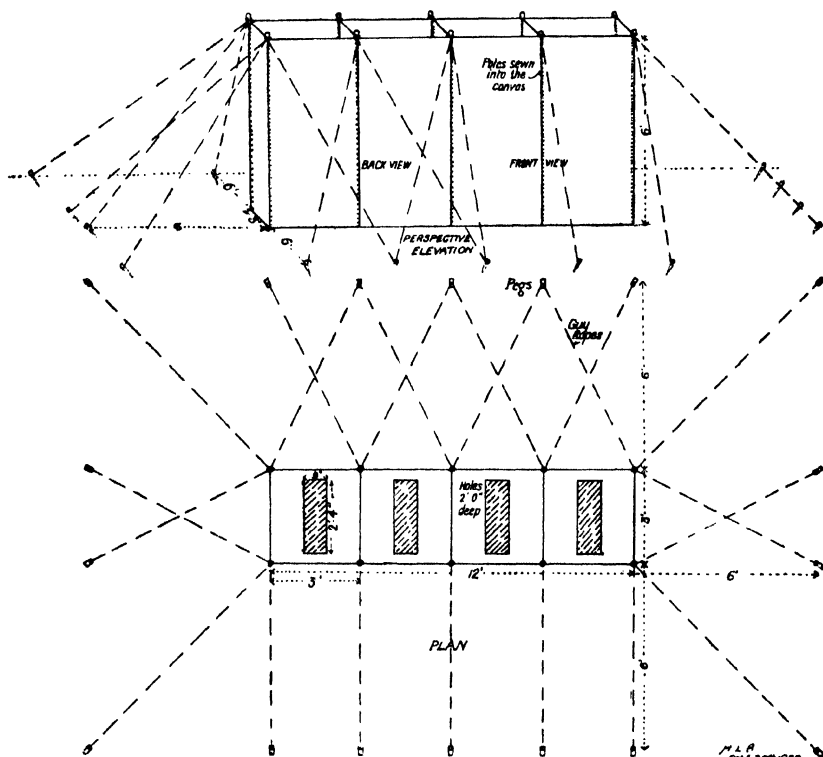


Fig. 3.—Design for Canvas Latrine Screen (four compartment)

Personal Equipment.—Shirts and shorts should be the rule for camp wear, and it adds much to the appearance of the boys in particular and the camp in general if a simple serviceable uniform is adopted, consisting of, for example, khaki shorts and khaki shirts. In addition each boy should be provided with the following articles:

1. A stout canvas kit bag, either with the name of the owner stencilled in bold black letters, or, if loaned, with an identification number stencilled in bold figures (trunks and packing-cases should not be tolerated, though officers may be allowed to bring suitcases).
2. A complete change of clothing. A pair of stockings in addition to those included in the complete change will prove useful.

3. Bathing costume, pyjamas, towel, mirror.
4. Three blankets and a ground-sheet.
5. Two stout pairs of boots and a pair of rubber-soled shoes. (A pair of gum boots will prove useful for wet weather and the early hours of the morning.)
6. Hair brush and comb, tooth brush and paste, boot brushes and polish.
7. Haversack for carrying rations on excursions.
8. Note-book, note-paper and envelopes, and pencil.

Each boy should be encouraged to bring one book for reading and lending. Indoor games will prove a blessing during wet weather. Boys should also be encouraged to provide themselves with a one-inch map of the camp district.

It is a good plan to issue to parents a list of articles required as personal equipment. Only in this way can the officer in charge be sure that each boy will be provided with the necessary items. It will also be found advisable to warn parents as to the necessity for good, well-fitting boots and shoes.

The Lay-out of Camp.—The field decides the lay-out. Theoretically one would like to have the marquee and kitchen shielded from the prevailing wind by a belt of trees—water handy—the latrines as far as possible from the kitchen on the lee side of the field—the boys' tents on the flat—yet all nicely concentrated in one section of the field. Rarely can this ideal be realized. One can only keep the general principles in mind and make the best of the site. It is therefore very desirable that those responsible for pitching camp should previously visit the site and have their plans cut and dried before the first wagon-load arrives on the field. The various items of gear can then be dumped in the most appropriate places, thus saving hand haulage. The plate facing p. 248 illustrates a well-arranged camp. The field is of ample dimensions, with the result that the tents are well spaced. The trees on the left, aided also by the hedge, afford suitable protection for the marquees, whilst the high ground in the rear shelters the whole camp. The grouping of kitchen, stores, mess tent, and marquee should be noted.

Pitching a Bell Tent.—The *Army Method* of pitching a bell tent is as follows: Mark the centre with a peg. Describe a circle of radius 4 paces (10 ft.) on which all pegs will lie. On this circle drive in two pegs, one pace apart, opposite where the door will be. At three paces from these pegs on either side of them drive in pegs for main guy ropes. The other main guy pegs will be five paces from these. Joint up the pole, place the rounded end in the rope cap of tent, put the foot of pole touching the centre peg and fix the four main guy ropes. Drive in the remaining pegs one pace apart and opposite seams of tent.

Another Method—The ordinary bell tent is 42 ft. in circumference and has 21 panels. There are three ventilators, equally placed; a seam

runs down the middle of each ventilator and a guy-rope is in line with each seam. Paint red the runners of these three ropes. Now mark out the ground thus: stretch a measuring tape along the ground in a straight line, place pegs (butcher's iron skewers) at 16 ft. 6 in. and 33 ft. (the door will come midway between these pegs). Hold tape firmly on pegs. One

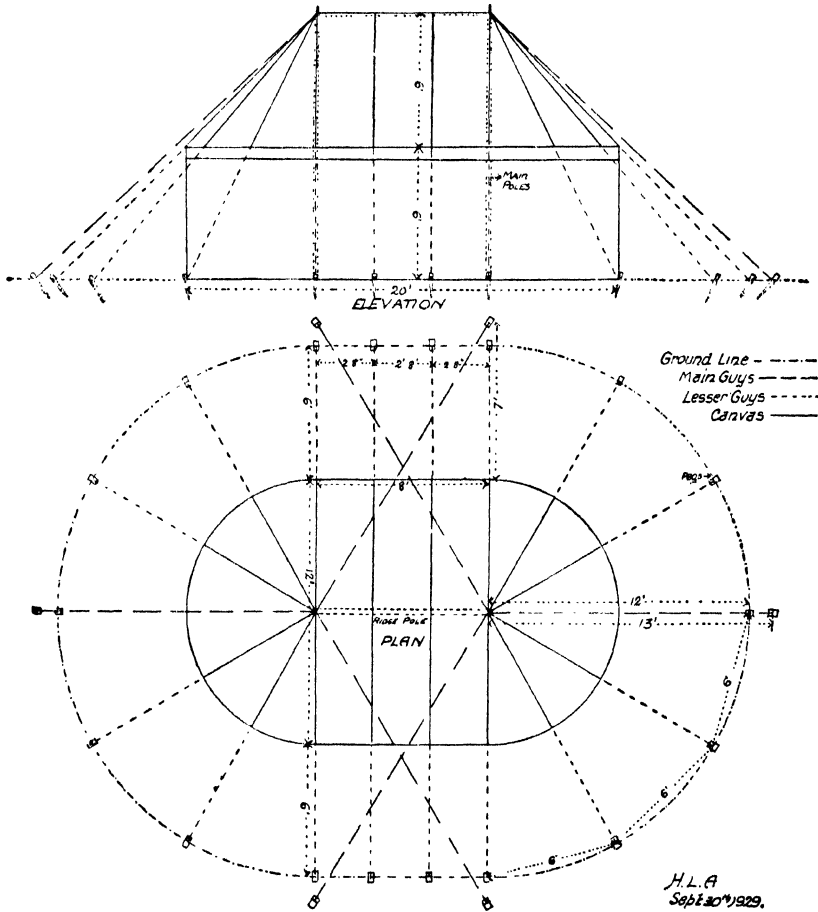


Fig. 4.—Erection of a 20 ft. × 12 ft. Marquee

boy takes the end of tape, another takes hold at 49 ft. 6 in.; each now moves through an arc of a circle until they meet. Place peg here. An equilateral triangle is thus marked out. Find its centre. Drive into this spot a 2-oz. cylindrical tobacco or similar tin. The centre is now plainly marked for the whole period of camp. The centre should be 9 ft. 6 in. from each corner of the triangle, and all guy-rope pegs should lie on the circumference of a circle. Replace iron skewers by wooden pegs driven in at an angle of 45 degrees. Spread out tent, door uppermost, joint up the

pole, place the rounded end securely in the rope cap, raise tent, place foot of pole on tobacco tin, put ventilator guys on pegs.

The tent will now stand alone and remaining pegs can be driven in. Begin at the door, flaps overlapping. Stand one boy inside tent, whose business it is to see that guy-ropes are tightened equally on all sides; otherwise the too enterprising will pull the pole out of the perpendicular, and the temptation is then to get it upright by moving the foot of the pole, instead of slackening guy-ropes on one side and tightening them on the other.

Erecting Marquees.—It will be advisable to get the tent contractor to send down two men to erect the marquees for the first camp. One learns

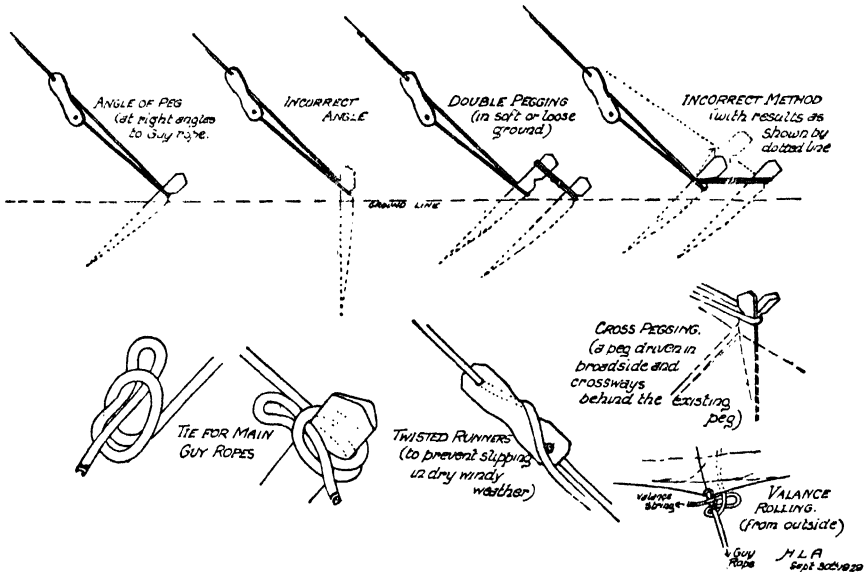


Fig. 5.—Pegging

readily from these experts, and the knowledge thus acquired will remain more permanently than by the study of written instructions.

The guiding principle in erecting marquees is first to mark out the position of every peg with the aid of a tape measure, bearing in mind that each peg should be the same distance from the foot of its pole as the pole is high; i.e. a six-foot pole should have its pegs 6 ft. from the base of the pole.

Drive all pegs well home. (Wooden pegs are preferable to iron ones.) Lay the main upright poles on ground with their feet at the appointed places, fix ridge poles to uprights, slide one half of roof canvas under poles, fold other half on top of poles, fix main guy-ropes to uprights, fasten main guy-ropes to pegs on windward side, taking care that the ropes are sufficiently long to allow poles to come into the upright position and no more. It is essential that these ropes should be securely fixed, as, if there is any wind blowing and one rope gives way, the whole concern will come

down with disastrous results. The leader, being satisfied that everything is ready, disposes his men, three or four to each rope on the leeward side, and the strongest of the party to raise the ridge and main poles, two to each pole and three or four to the ridge. It is advisable to drive three or four pegs upright into the ground at the foot of the main poles to prevent them slipping when the hauling begins.

The leader must not attempt to do any lifting or pulling himself, his job is to supervise and guide. On the command "lift", the ridge and pole men will lift until the pole men can get their shoulders under the pole and will then hoist the pole as the builder's labourer does a ladder.

The rope men do not pull until the pole men have hoisted the pole past its "dead centre". The leader must see that both poles are pulled up at the same rate. When erected, some adjustment will be necessary before both poles and ridge are in the same vertical plane.

The best knot to use for fastening the guy-ropes is the clove hitch, but instead of pulling the loose end right through, leave it in a loop; by this method any rope can be instantly loosened, even when wet (see fig. 5).

The rest is easy. Put the spike of the wall pole through the eyelet in the roof and fasten each to its respective guy-rope. The tent wall can now be hooked up. See that the canvas is outside the wall poles.

Do not omit to peg the walls down to the ground. At night the tent must be securely shut up all round or the wind may play havoc with your tent. Never omit going round marquees before turning in. See that the guy-ropes are not too tight. Should rain come it will gently but surely exert such pressure on guy-ropes that either rope or peg breaks or the peg presses on the ground and enlarges the hole. In the last case the peg becomes useless and must be driven in again in another place.

Should it be necessary to shorten a rope, do not employ anything but a sheepshank. Knots in guy-ropes are the hall-mark of the inefficient.

Catering.—This is the Quarter-master's duty. It is his job to plan the daily diet sheet, calculate the quantities of meat, bread, groceries, &c., required, order them in bulk as far as possible, see that they arrive on the field, accept delivery, check them, store them, and issue them as required to the cook.

When the food is cooked he supervises the issue of rations to the ration carriers. It is not his business to see that each boy gets his due share. Here enters the Adjutant, who makes what arrangements he thinks best for the purpose.

One method is to divide the camp into companies of between thirty and forty each. Appoint an officer as Officer Commanding the Company, who may have one or more helpers. Each company has a serving table allotted to it in the dining-tent on which the ration tins are dumped. The officers stand on one side of the table, one to each dish; the boys file past on the other side of the table, plate in each hand, and receive meat from one, vegetables from another, pudding from a third. In this way a complete dinner can be served to forty boys in less than five minutes.



LAY-OUT OF CAMP

A good Quarter-master is invaluable—a good cook is priceless.

Cooking in the open with trench fires or coal stoves is all right in fine weather, but in this climate it is better to be independent of its manifold variations and use oil stoves in a small marquee.

For heating water there is nothing better than a six-burner Primus and a boiler, such as is now supplied by most gas companies for domestic washing. In one of these boilers ten gallons of water (enough to make tea or coffee for 100 boys) can be brought to the boil inside thirty minutes.

For baking there are several good varieties of oil cookers available such as the Valor Perfection and the Valor Puritan.

Primus stoves require patient handling. A bowl of fine dry earth, or one of the patent fire-extinguishers, should be kept in the kitchen in case of accident. Do not be alarmed at this suggestion. It is intended more in the way of the Scout's motto "Be Prepared".

Variety is the spice of life. Nothing is more deadly dull and demoralizing than the knowledge that you will have, week by week, hot mutton on Sunday, cold mutton on Monday, hash on Tuesday, roast beef Wednesday, and so on.

Menus should be planned well in advance of camp; alternative menus should be ready. Plenty of vegetables must be provided. They can be cooked quite easily by using a boiler similar to the one recommended for boiling water, one for potatoes and another for greens.

Below is given a typical Camp Diet Sheet and some sample menus.

Camp Diet Sheet

BREAKFASTS AND DINNERS FOR A FORTNIGHT'S CAMP

BREAKFAST.	DINNER.
Bacon, rashers.	Bully, Stiff Dick.
Ham.	Roast beef, rice and apricots.
Sausage.	Soup, cold beef, boiled fig pudding.
Kippers (filleted smoked haddock).	Stew, rice and apples.
Bacon.	Soup, bully, Stiff Dick.
Eggs.	Roast mutton, boiled date pudding.
Bacon.	Soup, cold mutton, rice and prunes.
Kippers.	Stew, boiled suet pudding with treacle.
Sausage.	Roast beef, rice and apricots.
Bacon.	Soup, cold beef, boiled fig pudding.
Ham.	Stew, rice and apples.
Sausage.	Soup, bully, boiled date pudding.
Eggs.	Roast beef, stiff Dick.
Bacon	Soup, cold beef, rice and apricots.
Ham.	Sandwiches (rations for return journey).

Porridge for breakfast, potatoes and one other vegetable for dinner, are constants.

SAMPLE MENUS

BREAKFAST: Porridge, bread and butter, sausages *or* bacon *or* herrings *or* ham. Tea.

DINNER: Cold beef, potatoes, salad, tinned fruit.
Roast beef, potatoes, haricot beans, plum duff.
Stew, prunes and custard.

TEA: Bread and butter, cake, *or* tinned fruit, *or* stewed fruit, *or* jam, *or* marmalade.

The Tuck Shop.—No matter how well boys are fed they *will* have tuck. The labour of running a tuck shop is not great and is well worth the trouble involved. The goods supplied should be of the best quality; and it is possible to regulate, more or less, the amount each boy consumes by limiting his spending capacity. This question is linked up with the Camp Bank. It is desirable that, the younger boys at any rate, should hand over their pocket-money on arrival in camp to an officer detailed for this duty. If this is done boys cannot squander all their money in the first few days, or lose it on the beach, and then write letters home begging for further supplies. The Bank should be open at a stated time daily, and *once* only.

An experiment worth trying is to provide bread and butter only for tea, allowing each tent or group at table so much cash for the purchase of their own tea delicacies. This would need careful watching.

Parents should be informed that plenty of plain wholesome food will be provided, and that, therefore, sending supplies of rich delicacies is not looked upon with favour. If good plain food is being refused it is a sure sign that boys are spending too much money on or receiving too much tuck. Boys should be advised to purchase fresh fruit as much as possible rather than too many rich cakes, chocolates, ices, and so on. Sickness due to over-feeding or injudicious feeding should be a rare occurrence. Sickness resulting from intemperance in feeding should be regarded as a social offence and the guilty person severely reprimanded.

Financing Camp.—The expenses of camp are (a) site; (b) transport; (c) hire and purchase of equipment; (d) food.

Site.—The average charge for renting a field for a fortnight in this country is £5. Some farmers prefer to charge according to the number of boys, a fair price being at the rate of one penny per boy per night. In Ireland farmers rarely charge for the use of a field—a point to be remembered when the extra cost of transport has to be considered.

Transport.—Boys under 16 travel at half the single fare for the return journey, boys 16 to 18 at a single fare. One adult to each 8 boys is allowed at this latter fare. Transport of equipment, if a special van is required, works out at about sixpence per mile each way.

Hire and Purchase of Equipment.—The most expensive item in

equipment which has to be hired is that of tents. The usual charge for a bell tent during July and August is 10s. to 12s. per week. At other times the charge is 5s. per week. As has already been suggested, as much as possible of the other equipment should be purchased—or at least a portion of it purchased each year.

Food.—The cost of food for a camp of from 50 to 100 boys works out at an average of 1s. 6d. to 1s. 9d. per boy per day. This allows of liberal supplies and ample variety. It should be added that these figures are based on judicious purchasing in large quantities and careful store-keeping, allowing of very little waste. Schools in large towns can usually purchase most of their food supplies on wholesale terms and take such supplies with them. Sale of surplus supplies is always possible.

CHAPTER IV

Continental Camping

No account of school camping would be complete without some information regarding the possibilities of continental camping and touring.

The school undertaking such trips will find that the cost of travelling practically limits activities to France, Germany, or Switzerland. If France be chosen it is necessary either to take canvas or to sleep in hotels. The cost of transport limits the possibilities of the first method to those living near a port on this side the Channel, and the camp site on the other side must, for the same reason, lie near the port of debarkation.

On the other hand, if Germany be chosen, the possibilities are much greater and difficulties disappear as if by magic. Germany realized after the War that, in her children, she had the makings of a C3 nation, undernourished by four years of blockade. In the thorough Teutonic manner she set to work to remedy this by the cult of fresh air and exercise. Many German schoolmasters accordingly take their pupils at least once a month for a week-end walking excursion into the country. This is made possible by the establishment in every German town of Youth Shelters, where the pupils can be supplied with bed, breakfast, and washing accommodation for less than a shilling a night. This seems absurd, but it is true. Barrack-rooms no longer required for soldiers have been handed over for the use of the children. Sleeping and dining accommodation are already there, other rooms have been converted into reading and writing rooms, cooking facilities have been provided by the simple expedient of fixing penny-in-the-slot gas-meters connected to gas-cooking rings. Each group of pupils can prepare their meals side by side, without inconveniencing one another.

Where barrack-rooms are not available, some other building has been acquired and converted to this use. To each Shelter House a House

Father is appointed whose business it is to keep the place clean, issue and collect blankets, and generally act the part of host.

A German Tour.—Initiated by a few schoolmasters in 1910, this scheme for the provision of hostels or shelters for young "Wanderers" of both sexes made only slow progress until war broke out. Since 1918 a phenomenal development has taken place. In 1928 the number of shelters was over two thousand, the membership of the association, known as *Verband für Deutsche Jugendherbergen*, exceeded one hundred thousand, and the number of beds occupied was over three millions.

The German state railways assist by granting, to groups of not less than ten pupils under twenty years of age accompanied by a teacher, a reduction of 50 per cent of the fares. Certain additions are made when travelling by express trains.

Steamboat companies also grant substantial reductions without any fuss; application only need be made half an hour before the boat leaves. English boys and girls may make use of these buildings on the same terms as the Germans, i.e. the school must be affiliated to the association, the responsible leader of the party must send his photograph, together with membership fee (minimum 5s.) for the *Mitgliedskarte* (membership card) and 3d. for the *Führerausweis* (Leader's Pass). The other members of the party do not require any passes or permits.

Wherever one goes a friendly reception is assured. Passports are necessary: a collective one of not more than forty names costs 5s.

Cost.—The cost is by no means excessive. A Birmingham school visited Heidelberg, went up the Neckar valley to Eberbach and then on to Miltenberg through the Odenwald—the cost amounting to £7 per head for the fifteen days' tour. A Southampton school visited Heidelberg, on to Frankfurt-am-Main, down the Rhine by boat, at a cost of £6 per head for the twelve days' tour.

Customs Regulations.—If cameras, musical instruments, or non-consumable dutiable articles are taken for use abroad, a list in duplicate, giving identification marks, must be prepared. One copy must be sent to the Waterguard Superintendent at the port of embarkation, with a covering letter stating destination, date of sailing, and date of return. The duplicate must be kept for production to the Revenue officers on return.

The traveller is entitled to bring into England, free of duty, half a pound of tobacco and half a pint of spirits *or* half a pint of perfume, per person.

Rucksacks and Sleeping Sacks.—On foot or cycle, something to carry spare clothing, toilet requisites, &c., is essential. The rucksack is the best thing devised and the best variety is Bergens Meis, made by Sverre Young, Oslo, obtainable through the Camping Club of Great Britain and Ireland. This has a light steel tubular frame which fits the back, allowing air space between back and burden. The price is high (two guineas) but the value is good. Do not be beguiled into buying the cheap smart-looking

variety. It will probably be out of action before you embark. Look particularly at the straps: they should be of leather and wide across the shoulders; narrow webbing cuts into the flesh. Flack & Co., Belfast, make one for 12s. 6d., not smart but indestructible.

With regard to kit, one should make up one's mind to take only absolutely essential things, then leave half of them behind. A good sleeping sack can be made out of an ordinary sheet folded lengthwise and stitched up to within 18 in. of the top, making ingress easy.

Useful Addresses.—The following addresses will be found useful when planning a German tour as outlined above:

Passport Office, 1 Queen Anne's Gate Building, Dartmouth St., London, S.W.1.

Continental Express Ltd., 38 Bucklersbury, London, E.C.4.

Chief Commercial Manager, Southern Railway, Continental Dept., Victoria Station, S.W.1.

German Railways Information Bureau, Administration Office, 9 Queen's Gardens, W.2.

Stadt Verkehrs- und Wirtschaftsamt, Cologne, Unter Fetterhennen 19.

Divisional Passenger Commercial Superintendent, Euston Station, N.W.1.

Verband für Deutsche Jugendherbergen, Hilchenbach in Westfalen, Germany.

SCHOOL JOURNEYS AND EDUCATIONAL VISITS

BY

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SCHOOL JOURNEYS AND EDUCATIONAL VISITS

CHAPTER I

Teaching in the Open Air

The technique of open-air work differs widely from that of the classroom. In the open air we are in a new school world conditioned by the absence of walls and desks, and by the necessity of movement. There are distractions all round—wind, dust, rain, sun, other people, dogs, sheep, cows, the song of birds, the flash of beautiful butterflies on the wing; and, what is more, the children associate work with the desk, and play with the field. If a pupil yields to great temptation and misbehaves, there is no cane, no corner, no keeping in. To the ordinary, steady-going teacher the prospect of having to keep a class of lively children occupied for a couple of hours in the open air may prove disconcerting.

Sketching.—A teacher once asked for suggestions for “talks on school walks”. “Sit and sketch” is a much better motto than “walk and talk”. The solution of the problem is not to give alfresco lectures, but to provide interesting work for the children to do. Sketching is the open-air teacher’s stand-by. If, when orating on the beauty of a tree, one is suddenly upset by the consciousness of critical outsiders, one can regain composure by telling the class to sketch the tree. And should the annoying out-of-work hobbledohoy interrupt with ribald remarks, he can be instantly discomfited by telling the children to make a sketch of *him*.

The timid teacher might do worse than make the initial open-air experiment with a sketching afternoon pure and simple. The locality should be chosen to yield new material not encountered near the school. Town children will delight to sketch stiles, gates, hay ricks, wayside drinking troughs, milestones, tombstones, bridges. Upper children who can draw well may be allowed to attempt a village cottage or church, but the weaker draughtsman should be advised to take small portions only—a door, window, chimney-pot, weather-vane. Animal studies are usually disappointing, but it will be “fun” to make an attempt at a sheep or cow, or pig, or ducks. There should be profit and not loss if the whole

of the summer's art were taken out of doors. One is far more likely to discover and help the budding artist in this environment than by drawing and painting at a desk.

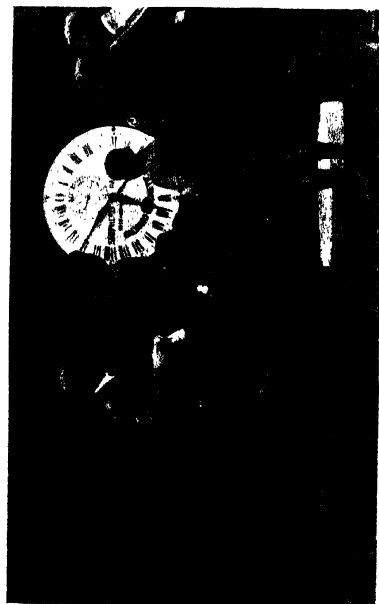
Collecting.—A good deal of collecting has been done on school-journey and half-day expeditions—not always judicious collecting. The Nature Study Union felt it advisable to choose as its motto, "See and admire", not harm or destroy. The motto is worth adopting by every student of animal and plant life. School collecting competitions have exterminated rare plants in some districts, and no teacher wishes to inspire such a disastrous result. There can be no harm in collecting rock specimens and fossils from quarry or cliff or cutting, but collectors should be provided with little tie-on labels, and be made to write the name, place, and date of discovery on each label used. This of itself will provide valuable work, and will prevent the lessons from degenerating into a mere stone-smashing orgy. Match-boxes should be taken when fragile specimens are to be found, e.g. shells on the seashore.

Pond-dipping under skilled control can be made to occupy a profitable afternoon if the water beasts are taken back to school and housed in jam-jar homes properly equipped with water plants for food and aeration. Children will always want to run riot in a wood of bluebells, a field of cowslips, or a bank of primroses. Shall we apply our rule of "see and admire" only? Not necessarily when flowers are in abundance. It is a perfectly natural instinct for children to want to pluck pretty flowers, but it is well to make a rule that *no flower should be picked and then wantonly thrown down*; they must be taken back to beautify the home or school. And *no animal should be taken that cannot be fed and tended as a pet*.

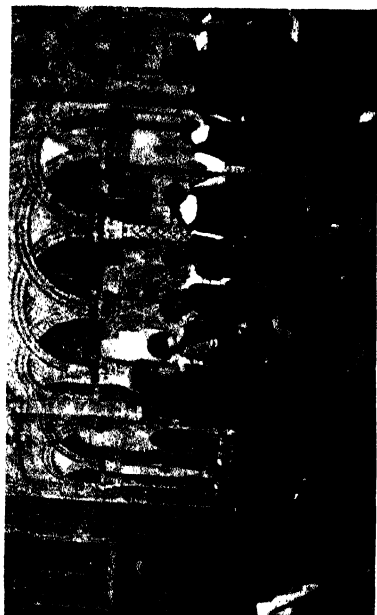
There is something to be said for the collection and pressing of plants between sheets of blotting-paper, but our nature-study will be truer and finer when plants are observed in their natural haunts; the way they adapt themselves to the struggle for food, water, light, and air; their devices for attracting insects to assist in fertilization; their plans for effective dispersal of seeds.

Exercises of Concentration.—There is a large field of research—only slightly explored—for the teacher who feels the lure of open-air teaching. It lies in the direction of discovering exercises which will incite a class to steady concentrated work for a considerable time.

The teacher may consider the advisability of inducing the children to *watch in silence* for three or four minutes—a very necessary thing for a naturalist to learn to do. The ever-present hunting instinct will arouse enthusiasm for the task of stalking any living creature. Two London boys were discovered silently at the mouth of a rabbit hole. They had been waiting patiently a quarter of an hour for the appearance of brer rabbit. The bird-loving teacher will naturally encourage a good deal of this watching. Close, breathless watching for several minutes, lying flat on the ground, is an excellent introduction to a pond-dipping lesson.



Transvaal Intermediate Scholars at the 24-hour Clock at Greenwich



Children delight in Architectural Sketching



Sketching the Swans at Abbotsbury Swannery



Note the great thickness of the walls of Carisbrooke Castle

SCHOOL JOURNEYS—I

Rock pools on the seashore again provide fascinating watching exercises, which may be followed by detailed sketching and perhaps description.

Lessons near the School.—Lessons in the park and field are not nearly so commonly used as they should be. There is an impression that lessons away from school must be in classes of not more than twenty. This is a very good rule for visits to museums, castles, abbeys, and factories. It is, however, quite possible to do a good deal of open-air work with classes of forty. Larger objects should be chosen, trees, clouds, &c., with a good deal of sketching. Conducted in this manner, open-air lessons will not unduly strain the teacher's voice, and being agreeably occupied the class will not overtax the control of the average disciplinarian.

A number of village schools could teach much of the geography of the lower standards on the hills and by the streams—within half a mile of the school itself. It is a very poor park that does not provide an assortment of trees. Three trees will keep a class well occupied for an hour and a half. In a month's time the same trees will provide another equally valuable lesson.

CHAPTER II

The Development of the British School Journey

It is highly important to understand the difference between a school journey and an educational visit as understood by the Board of Education.

The *educational visit* is a day or half-day expedition—generally to some place of educational interest in the neighbourhood. It may be to a museum, church, castle, concert, cinema show, or it may consist of practical geography, history, or art in the park or field.

On a *school journey* the children are transported to a new region and the teachers are in entire charge for the whole time. The school journey has a bed—the educational visit has not. The school journey should also have a guide-book which betokens a carefully planned educational programme.

Early History

Fifty years ago teachers were too busily engaged in securing passes in the 3 R's to bother much about outside activities, although Saturday rambles by keen teachers were not unknown in those days.

In the eighties Joseph Cowham introduced an annual geological excursion for his students at Westminster, and advocated half- or whole-day "school journeys" as an aid to the teaching of geography. In those days no scientific expedition was complete without special maps, diagrams, and notes, and Dr. Cowham's Caterham trips had most carefully prepared

maps and diagrams. The suggestion to take children on scientific expeditions with maps, &c., was quite new, and thought at the time to be very daring. During the nineties a small but steadily increasing number of enthusiasts indulged in Saturday educational trips on Cowham's lines.

The school journey proper—the school expedition with a guide-book and a bed—was born in 1896. One of Cowham's pupils, a young London teacher, was jeered at by an older colleague about his "Saturday madness". "Why be content with a day? Do the thing thoroughly, take them away for a week while you are at it." That challenge was taken up with the light-heartedness of youth. There were no high aims; those were discovered and formulated at a later period. The teacher went alone with twenty boys to Malvern at a cost of £1 a head. The beds were on the floor, over a stable containing horses. Geology alone was the objective, and the guide-book contained, chiefly, geological maps.

It was not at all a happy experiment, and might not have been repeated had not two other young colleagues volunteered to join. Things moved quite rapidly then. The quality of the guide-book was improved (so was the sleeping accommodation): history and architecture were added. The all-important social life was developed. Local celebrities were approached and gave entertainment, the boys played football with the local team (it was Easter), and gave a concert to the natives. Only inland places were visited—Malvern, Newnham-on-Severn, Chepstow, Abergavenny.

There was a new experiment each year suggested by one or other of the trio, but they had no idea of starting a new movement, it was just—High Adventure!

Whitehall had no hand in the infant growth of the school journey. There had been no supervision of these Easter trips either by London County Council or Board of Education inspectors, the result being that the school journey was shaped by the teachers themselves, on purely English lines, without reference to any similar experiments that may have been tried abroad.

The next step was to win permission for day journeys in school time. This was at last granted, but very reluctantly, for though teachers might possibly be trusted to work in a museum or castle or abbey the temptation of Hampstead Heath might prove irresistible. This concession of field lessons in school time led to an exploration of the possibilities of open-air lessons on trees, streams, ponds, clouds, quarries, &c., and prepared the way for the seven to fourteen days' journey in school time.

The years just before the war witnessed a period of great experimental activity. There were journeys in barges: children were boarded in country cottages, in old railway carriages: a school in Newcastle exchanged homes with one in the Lakes. Another teacher copied the German plan and went on tramp from place to place. But though successful in the hands of their conductors, tramping expeditions have not proved attractive to any considerable number of other teachers coming into the movement.

Manchester tried another plan which was copied by other local education authorities. A special country school was built at Knutsford with dining and classrooms, and excellent sleeping and washing accommodation. Batches of children went from the poorer schools to Knutsford for a fortnight. Ordinary lessons were taken in the classroom in the morning. The permanent superintendent of the school took the children out for nature walks in the afternoon.

At one time it appeared that the camp would emerge as the most popular form of school journey. However, the uncertain British weather, and the ingress of the girls' schools, gradually led to the present supremacy of the hostel, which leaves the teacher quite free to teach, and go out for a whole day if he wishes.

There have, in recent years, been other interesting experiments, including a journey along the Pilgrim's Way. One party came from Leeds in two motor lorries, and were allowed by the London County Council to use a school with cookery centre as hostel. Another country school found beds in the homes of London scholars and dined at Lyons' tea-shops.

It took the railways a quarter of a century to realize that the school journey is one of their most profitable publicity agents. One of the most valuable services rendered by the School Journey Association has been its persistent and tactful education of the railway companies. The school age for a child on a journey has been raised to 16, and the rate is not one-half, but a quarter fare. Teachers travel at half rates.

The School Journey Association

The School Journey Association was launched in 1911. Its executive included all the London pioneers. The result of its steadily sustained propaganda can be seen in the rising curve of the school journey graph in its *Annual Record*. It has aimed at educating not only its own members, but politicians, editors, inspectors, and directors of education.

In London the school journey is not looked upon as a form of country holiday, but is recognized as a highly remunerative section of the school curriculum. Neither are teachers now accused of angling for an easy fortnight. People are beginning to appreciate the sacrifice of time, money, and effort made by those who undertake a 24-hours-a-day 7-days-a-week job.

The association has rendered many services in the movement. Among them are the following of surpassing value:

1. The compilation and annual revision of a list of approved hostels and camps—giving the number of beds, charges, &c.
2. The establishment of an insurance scheme (5*d.* per head), which relieves teachers of financial anxiety in connexion with accidents, infectious disease, strikes, &c.

The insurance proved to be a fine piece of statesmanship. The fear

of exorbitant claims for damages made not only London but many other education authorities reluctant to encourage school journeys. Once that fear was removed, increased grants came from the London County Council for poor children.

3. The issue of an *Annual Record* to its members giving full details of the year's work, new experiments, and suggestions for the better conduct of the journeys.

The annual subscription is 2s. 6d. and the secretary is Mr. H. Barter, 35 Parkview Road, Addiscombe, Croydon.

Although the school journey seems to be most highly developed in London (500 journeys in 1930), a third of its members are provincial. There is a Scottish branch affiliated to the main body.

Finance

It is impossible to talk of school journeys without referring to money. They cost 15s. to 20s. a week for board and lodging, 5s. and upwards for railway fare, plus 5s. for excursions. £2 for a fortnight is a low figure; 50s. would be a good average. Quite a number of parents can and do, and should be made to pay, the full amount, usually in weekly instalments.

Until 1920 the local education authority could give no financial assistance to scholars. Teachers raised their own funds from friends of the school, by jumble sales, lantern lectures, concerts, &c., and they paid the whole of their own expenses.

In 1920 came Mr. Fisher's Education Act which, for the first time, allowed local education authorities to pay not only for education, but for railway fares, board, and lodging. This act nearly killed the school journey, for it insisted that no parent should be charged for any educational service in school time. It followed that school journeys could only be undertaken if the local education authority paid the whole cost. Public opinion was certainly not ripe for such a large increase in educational expenditure—for all schools would have to be treated alike.

There was, however, another clause in the Fisher Act sanctioning limited grants for holiday camps. Children were marked absent on the day school register and lost their attendances, but got the other grant instead. For two years the London County Council made generous grants for poor children, and by 1921 the number of journeys had mounted to 300.

The Geddes Axe removed all grants at one fell swoop and the number of journeys fell to 100. The Government that did it was defeated. The grants trickled back, poor schools came in again, and the curve of the school-journey graph shot upwards once more and continues to rise. But the school journey still calls for great effort and sacrifice on the part of both the head and the organizers. This ensures that only keen people undertake it, and is of itself a guarantee of a high average degree of efficiency.

Later Developments

The London County Council took a wise step when it made the rule that the journeys should be run by assistants, thus affording 400 to 500 young and ambitious teachers a chance of showing what they could do as acting heads. The work calls for high powers of organization, resource, imagination, co-operation, and business ability. No one can run a school journey without acquiring a new outlook on education, a desire for greater freedom, and an inclination to use it in experiment. The school may suffer some dislocation; but it gains immeasurably in other ways—and this is one.

A fine feature of the school journey to-day is the extent to which it attracts interest and help to the child from a wide variety of sources. Parents, teachers, managers, Board of Education, the local education authorities, railways, hospitable residents in the locality visited, all make a contribution to carry it through to success.

There are three later developments of great intrinsic value which have the promise of expansion in the future: (1) the junior school journey, (2) the continental school journey, and (3) the imperial journey.

The Junior School Journey.—Generally one would choose the seaside for younger children, and do most of the educational work on the seashore. One London school, however, after six experiments at Dovercourt, Hastings, Sandown, Weymouth, and Exmouth, decided to try other possibilities. A party of thirty little girls and boys, aged 8 to 10, were taken to Southampton under the care of two teachers. The playground of the seashore was missed, but the hostel had a large lawn, and Southampton Common was near. The trip of necessity became a sight-seeing week, and it was astonishing how many sights these young students saw, what an intelligent interest they took in them, and how much they remembered of what they had seen. The first day was spent in a motor-trip to Bournemouth. A halt was made in the New Forest (so many trees together being a new experience for nearly all) and another at Highcliff, for a paddle. At Christchurch Priory they had lunch in the ruins of the old Norman castle; then on to Bournemouth, and home by Rufus Stone.

The next day was more crowded still, with Toogood's Seed Factory in the morning, and Romsey Abbey in the afternoon. At the seed factory the children were conducted round by a director and the manager, and did not hesitate to ask questions. "What is a mangel-wurzel?" "Why do you give potatoes names?" They went up to the laboratory and saw experiments in germination. "Why, we do this at school!" a girl cried, and then they wanted to know all about it, and heard of percentages. Then there came a peep through a microscope at a fungoid pest, and, lastly, tea and cakes.

Romsey found the children keen and eager. The teacher pointed out Norman, Early English Decorated Architecture, associating each with a monarch and date. Then the children were turned loose to sketch at will, and some were with difficulty drawn away. The Saxon carving

of "The Living Christ" attracted them greatly. ("Is it very old?" "A thousand years old.") We believe Romsey Abbey gave them a first real feeling of time in the historical sense. There were many other things, and notably a peep at close quarters at the organist manipulating manuals, stops, and pedals.

Juniors do not need intensive preparation for a journey. The teacher needs the chief preparation, going over the ground carefully beforehand, and selecting carefully from a mass of possible teaching material just those things which may be considered most useful. Juniors like to have a guide-book because the seniors always have one. It is useful as a dictionary, so that places and things will not be misspelt in notebooks and have to be unlearnt at school. If we see a lighthouse, and sketch it and get a clear mental picture, it is worth while fixing the spelling correctly at the same time.

Collection of pretty rock specimens, pebbles, and shells; making plans and models in sand, damming a small stream, counting lighthouse flashes, timing waves (in fact, any counting); these are popular occupations which can be turned to educational use by the resourceful teacher. Plenty of organized games, dramatization, story-telling, can all be used freely and profitably.

The Continental School Journey.—The continental journey has passed the experimental stage. Under the guidance of the continental section of the School Journey Association several hundred central and secondary schools visit the Continent every year. Half of these go to France, mostly to Paris. Belgium comes next in popularity; then Switzerland and Germany. Others have gone to Warsaw, Innsbruck, Florence, Corsica, and the Balearic Isles. Almost without exception continental journeys are conducted by teachers in holiday-time, chiefly at Easter, without any financial assistance from the local education authority. Preparation for examinations and the serious dislocation of schools organized for specialist teaching make the heads of secondary schools reluctant to have journeys in term time.

One can understand, too, the reluctance of local education authorities to place continental trips on the same footing as those from elementary schools in the homeland. It might imply a claim for grants—large grants too—for the poor scholar: the accident risk on some foreign railways is proverbial: it would be difficult to supervise school work carried out in the Balearic Isles: all sorts of troubles are possible with continental hotel-keepers, customs officers, police, doctors. In England, a difficult situation can usually be dealt with swiftly—without allowing a public "scandal" to develop. It would not be so easy to extricate a party abroad.

Teachers have to form public opinion, and prove that not only is the continental journey educative, but that it is a most potent factor in the cause of peace, by promoting friendship with and understanding of, other peoples. This latter point is making a strong appeal to the thinking public.

Meantime teachers can obtain particulars of hostels on the Continent,

cheap travel, outline tours, and the indispensable insurance by joining the School Journey Association and writing to its secretary.

The Imperial Journey.—Several parties of secondary scholars have visited this country from South Africa. A very successful first tour was planned by the School Journey Association of Transvaal, when fifty youths came over. Roughly it lasted ten weeks and cost £50 per head. The English association planned and organized their programme in this country. Some of the youths were Dutch, and conversation with them proved that the visit had definitely altered their attitude to the Mother Country. The future development of the imperial journey would seem to await the awakening of British universities to its value.

CHAPTER III

Organization

The true school journey calls for great powers of organization and much thought. It should not be undertaken by anyone who is not prepared to put every ounce of effort into it. Then the school journey can be a thing of delightful adventure which will give a sense of supreme satisfaction.

The school journey proper is undertaken with a definite *educational* aim. Holiday is a secondary consideration. Generally the teacher is drawn to one particular subject, history, literature, geography, art, nature-study. He will be wise to choose a centre which will afford him full opportunities along his own particular lines. He will find, however, that though history may be his chief aim, it will be impossible to ignore rivers, cliffs, flowers, seaweed, birds, or crabs when the children encounter them.

It is well to bear in mind what new experiences the children most need. London teachers flock to the south-east coast and the Isle of Wight. The better-class children are often taken to the sea by their parents, but few London scholars have seen a mountain or a coal-mine or waterfall. Abergavenny or Matlock would be a wiser choice from the point of new experience. For the country child, a sojourn to London, or some large city or seaport, would give most new impressions for the teacher to build on after the return to school.

It is wise to secure a hostel at least six months beforehand and book places provisionally, i.e. retain the right to withdraw within 3 months of the proposed journey should lack of funds or any untoward accident make it impossible to go forward. The School Journey Association's list of approved hostels is an extensive one, and it is usually possible to book a week or fortnight for May or early June, or September. There is more satisfaction, however, in prospecting on one's own account for an untried hostel at Christmas. Many private hotels which charge 3½ to 4 guineas in August will book a party of children under the control of their

teachers at a flat rate of £1 per head for May or June (excluding Whitsuntide). They will usually give the ordinary menu for this price, being glad to have the house full for £40 rather than have it empty.

The menu should, however, be agreed upon. There should be at least three meals, and it should be possible to take a packed lunch on some days, coming home to a hot two-course dinner at six. A careful eye should be kept on the all-important vitamins. Green vegetables or salad or fresh fruit should be supplied every day.

It is not always possible to ensure a single bed for each child, though that is highly desirable. Never accept the suggestion that three should occupy the same bed. Even two in the same bed is undesirable; a shake-down on the floor is preferable.

Finance.—In most schools there are parents who can afford to contribute a shilling a week through the year for a child's school journey. A good-class school will find no difficulty in getting 40 children to pay the full cost. The London County Council give grants to assist poor children but never enough to pay the full cost. There are few parents who cannot pay something. Members of the School Journey Association usually secure additional funds from benevolent friends of the school, from jumble sales, concerts, or lantern lectures. In recent years the London County Council has also made a contribution to the teachers' expenses, but enthusiastic pioneers in every new educational venture have been used to putting their hands in their pockets. If teachers wait for their local education authority to move, they will probably wait a long time. In most localities the pioneer teacher has shown the way.

Composition of the Party.—The ideal would be for a whole class of 40 to go with its own teacher and another, but not all parents are willing to let their children go, and some will make no contribution at all. In practice a party of from 20 to 60 (according to size of school) is made up from the senior school and sent with two or three teachers. The London County Council allows a "supply" teacher. For the fortnight the senior school is reorganized with one less class than usual. In that way the head teacher is not called upon to take a class. On no account should any party, however small, go with only one teacher. An accident might happen to that one teacher.

Travel.—If properly approached the railway companies render every assistance. Parties should not travel on Saturdays or "holidays". On other days ample corridor accommodation is provided. If asked very nicely the companies may grant permission to break the journey for a few hours, but this is a privilege. Schools often break the journey at Gloucester on the way to Ross and Chepstow; at Winchester or Salisbury or Exeter on the way to the west, the objective being the cathedral, always a profitable educational subject.

For shorter journeys of fifty miles, the motor charabanc is sometimes used. It has several advantages. It transports the party from school to hostel, it can be stopped at will for a short lesson, and it makes an excellent

classroom, the children being close enough together to hear the teacher's voice.

Teachers' Duties.—There must be one responsible head, but it is well to allocate definite duties to the other teacher. Experience proves that the organizer is best relieved of domestic responsibilities—so that No. 2 becomes “housemaster” and perhaps treasurer. The “housemaster” sees the children to bed, looks after minor hurts, sees that necks and ears are clean, and, most important, he makes sure that bowels are working regularly. Lack of attention to this may lead to serious trouble. He will take with him a small medical box containing bandages, camphorated oil, boracic ointment, iodine, syrup of figs, or some other aperient.

It is important to remember that the teacher is very much *in loco parentis* on a school journey. The teacher is expected by law to take the place of a *careful* parent. On expeditions teachers will of course do their best to ensure that a child gets into no mischief. The teacher's duty on a school journey does not cease at 4.30. It lasts all round the clock. If the children are turned out to play on the sands, one teacher should be in charge, and at night it is advisable for one to stay on the premises while the other goes to the concert on the pier. The teacher has little to fear in case of accident if the children are supervised. The School Journey Association insurance covers all accident claims against a teacher when supervision has been exercised. It also covers exceptional expenditure incurred by an operation case, infectious disease, and a railway strike. No teacher can afford to take a school journey without covering himself with this insurance.

Time-table.—It is impossible to work a good school journey by observing the hours from 9 to 12 and 2 to 4.30. Unless it rains there should be no desk lessons. The castle or abbey may not be reached till 12 and the chief work may be done between 12 and 1. The children are unconsciously learning something all the time. The teacher's success can better be measured by what he presents to his pupils rather than by the lectures he gives.

It is a good plan to give marks at the close of the day for sketches and notes made in the field and for specimens obtained, or for answers to questions. Twenty questions requiring one or two words for an answer, and corrected by changing papers, will answer the purpose and be completed in a quarter of an hour. Children should not be asked to write up careful notes in the evening after they have done the equivalent of three days' school work in one. A game on the sands or in a field, or a sing-song or tale-telling inside, is the best and fairest way of spending the evening.

Arrangements should be made for the children to make up their notes properly or write essays on the return to school. A selection from these essays can be strung together to give the children's impressions of the trip. Usually the local newspaper is only too pleased to accept such interesting copy. Teachers who are pioneering will be wise to educate the public in every possible way.

Children's Walking Pace.—Eight miles is as much as any child should be expected to do in one day, and there should be several rests, with a long rest after lunch. Children can better do a short burst at a good speed, followed by a rest, than they can do a steady trudge. If a tramp of several miles has to be done to catch a train, it is better to march to snatches of song. Otherwise a free saunter is more enjoyable.

Dangerous Places.—There are few school journeys in which danger is not encountered. Children should never be allowed to bathe or go in boats without a teacher. A safe place should be staked out on the beach, and children forbidden to go beyond certain well-defined bounds when they are released for free play. In inland places a river bank may be dangerous—it should be rigorously placed out of bounds. It may be necessary to forbid tree or rock climbing when a teacher is not present. If a dangerous path, e.g. on a mountain-side or cliff-edge, is to be negotiated, the class should first be halted and got under control—perhaps by a few physical exercises. Careful warning of danger should be given, and any sign of fooling be severely dealt with at once.

Over-preparation.—Many open-air lessons require previous preparation if the fruits of success are to be fully reaped. It is, however, possible to err in the other direction. An open-air “object” should prove attractive and intriguing to a class, whetting the appetite. Curiosity and interest should be at a maximum. A certain amount of general information concerning a castle and the life of the barons will bring the class to the ruins with a strong desire to learn more. But much should be kept back till the children are on the spot, or they may be disappointed in their expectations. Thrilling stories of brave deeds and horrible murders done in the castle should, if possible, be kept in reserve by the teachers, and only produced at the psychological moment.

CHAPTER IV

The School Journey Guide-book

The guide-book is a distinguishing feature of the school journey. Primarily it provides the scholars with directions, maps, and notes for use on the journey. Friends who subscribe to the funds glean from it a clear idea of the good work they are supporting. H.M. Inspector and the Director of Education find in it the educational programme teachers are bound to submit. The pioneer can have no better weapon for propaganda than an artistic and well-planned guide-book. It probably takes some months to compile and print, but it affords the organizer a chance of expressing his own aims and methods, and it forms a lasting souvenir for teachers and scholars. It is worth while spending time and thought on the guide-book and printing as many extra copies as possible.



Their First Sea Voyage



Hard and Soft Strata at Lyme Regis



A Botany Lesson



A Valley Lesson in Wales

Methods of Printing

Teachers employ a wide variety of methods of printing. In some cases the material is set up in type and printed either at school or by the local printer. Others use the typewriter. Both these methods have the advantage of extreme legibility, but illustrations and maps have to be done on separate pages. The illustrated page throughout is much more pleasing. The result is that the majority prefer the cyclostyle or hectograph, and because the latter allows of the use of red, blue, green, and violet, it is most commonly used. A good "jelly" properly handled will readily give 160 copies. By putting the original writing on a second jelly another 50 or 60 can be obtained.

A sheet of foolscap doubled in half makes a suitable size, two pages being printed on one side and two on the other. It will be obvious that the first and last pages will have to be printed on one side of the sheet, and page 2 and the last but one on the other side. For this reason it is advisable to have a key plan, on which the various sheets can be crossed out as they are printed. Here, for example, is the organizer's plan for a 28-page Southampton guide-book.

{ 1. Frontispiece.	28. Teachers' report.
{ 2. Our aims.	27. Scholar's marks.
{ 3. What to take.	26. Trees to know.
{ 4. Probable programme.	25. Flowers to find.
{ 5. Programme.	24. Animals to observe.
{ 6. Route notes.	23. Poetic selections.
{ 7. Route map.	22. Poetic selections.
{ 8. Southampton plan.	21. Rock map.
{ 9. Time charts.	20. Ecological notes.
{ 10. Where the ships go.	19. Beaulieu.
{ 11. Roman Clausentum.	18. The "Laconic".
{ 12. The Rufus Stone.	17. Old buildings.
{ 13. Netley Abbey.	16. Old buildings.
{ 14, 15. Half-inch map of district.	

The brackets show the four pages which must be printed on one sheet, but it must be remembered that even pages will appear on the left and odd pages on the right, so that if we wish to have two pages facing we must arrange for the first page to be even and the second odd, e.g. 6 and 7 above. The middle page can be printed straight across and for this reason is usually reserved for a rather detailed map of the district, compiled from the ordnance one-inch or as in the above case from Bartholomew's half-inch.

The cover should be printed last of all, for on its two inside pages are printed: (a) the names of all friends who have helped either financially or in some other way; (b) the final list of the scholars participating, arranged perhaps in houses or sub-parties.

Very rarely does the organizer do all the pages himself, the best results

being obtained when others join in. The design for the cover affords an opportunity for the artists of the school, whether teacher or scholar. Some teachers bind the book in stiff card and bookbinder's cloth; an excellent plan if the school does bookbinding. The simplest plan otherwise is to print the cover on a thin card of post-card thickness. This card can be obtained in different colours and can be changed from year to year. When assembled, any book up to 36 pages, i.e. 9 sheets, can be stitched by the scholars with bookbinders' thread, and a thin strip of bookbinders' cloth pasted over the bend. It adds to the neatness of the book if a friendly printer can be induced to guillotine the edges.

Notes on the Pages

Blank pages.—Most beginners think it a good plan to include blank pages between the printed pages, but they do not often repeat the experiment. The reasons against this method are: (a) It makes the book bulky and more difficult to bind. (b) Children are tempted to copy the printed pages. (c) The book's value as a souvenir in after life is decreased by rough notes made in the field. (d) The teacher may wish to keep the children's notes for a time to show the inspector or for exhibition at a parents' day. It is better to supply each child with an exercise book, the kind with alternate drawing and ruled pages being most suitable.

Aims and objects.—This is a vitally important page which should be thought out carefully. It lets parents and others know that a school journey is far more than a holiday trip. Here are the aims and objects set out for a journey to Abergavenny:

1. To acquire the art of learning from the world at large as well as from books.
2. To foster habits of self-reliance and good fellowship.
3. To climb a mountain and enjoy the view.
4. To investigate the causes which produce scenery.
5. To bring back rock and other specimens for use in class lessons.
6. To observe plants and animals in their natural haunts, "See and admire—not harm or destroy".
7. To extend our knowledge of man's work, more especially that of the farmer, miner, and iron-worker.
8. To hear another language—Welsh.
9. To learn some of the history of our past from ancient cathedrals and castles.
10. To gain health and strength of body.
11. To discover the secret of spending a holiday happily and intelligently.
12. Last but not least—to bring scholars and teachers into more intimate touch and understanding.

Sometimes a quotation from some person of authority is added, e.g. :
 "The English school journey, based on our traditional method of work

Southampton in History. —

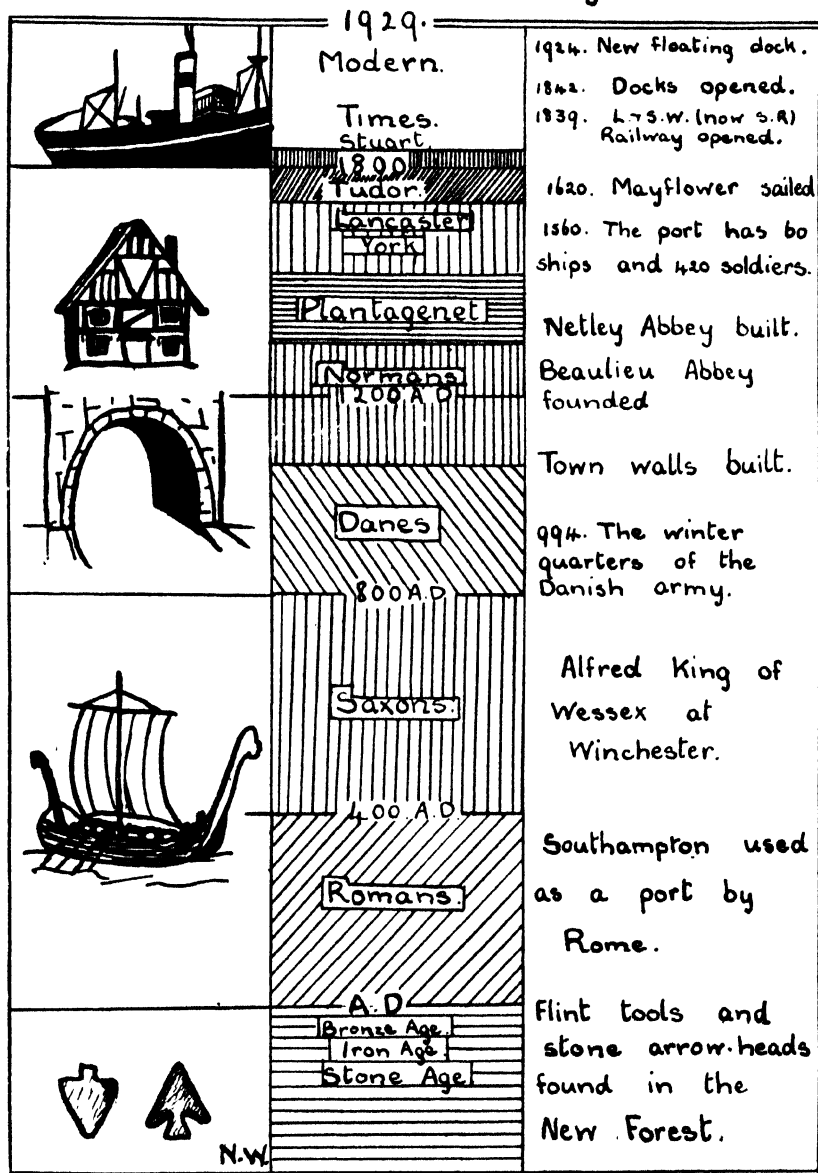


Fig. 1.—Page from Guide-book

and play, was found to have practically nothing to learn from Germany and America, and to be singularly efficient in bringing to a focus the year's work in history, geography, science, and literature" (Professor J. E. G. de Montmorency).

What to Take.—This page is for Mother.

- (a) In a case: comb, brush, towel, soap, and flannel, tooth brush and paste, boot brushes and polish, night clothes, socks, slippers, a change of clothes.
- (b) In your satchel: guide-book, notebook, pencil, pocket-knife, lunch for outward journey. (Useful to have—hammer, pocket-lens, compass.)
- (c) Wear: a school hat (uniform if you can), strong boots or shoes, a coat or mackintosh. Do not bring an umbrella.

Probable Programme.—At the top of the page it is advisable to put "Liable to alteration". Weather may necessitate this or a new and desirable invitation may be given by a local resident. It must be remembered that this is the official time-table to be accepted by H.M. Inspector if the journey is taken in school time. The journey is liable to inspection, possibly by the local H.M. Inspector, and word should be left at headquarters if a deviation is made. The inspector should be able to find the party.

Poetic Appeal.—It is a very good plan to have a page or two of poetic quotations. The school journey gives a good opportunity of stimulating appreciation of poetry. Here is a part of the two poetry pages in an Abergavenny guide-book.

When you come to the surroundings which cause these quotations to appeal to you, make a note of them and draw a sketch when possible.

"Up, up, up, staggering, stumbling
Round the corner where the rock is crumbling."—(*Milne.*)

"The green corn waving in the dale,
The ripe grass waving on the hill."—(*Bridges.*)

"It is good to halt at the chattering brook
In the tall green fern at the brink,
Where the harebells grow and the gorse
And the foxglove purple and white."—(*Masefield.*)

Marks.—These add to the teacher's work but are an aid to good conduct and a stimulus to earnest effort. They are given every day for personal cleanliness, conduct, and "observation". If the teacher believes in prizes, it is not usually difficult to find some friend of the school to offer them.

Report.—This should be made much of. There is not the least difficulty in writing a full-page report on a scholar after living with him for a week or fortnight. The report should be signed by all the teachers of the trip and endorsed by the head and a parent.

CHAPTER V

Specimen Lessons

The four following are given as specimens of open-air lessons. They may either be taken as individual educational visits or included in a school journey.

1. The Railway Carriage as a Classroom

Railways hold a fascination for children, they are eager to be taught about them. The carriage window is a cinema screen, on which all sorts of moving pictures are flashed. It only needs the teacher's explanatory words or notes to make a thrilling and instructive story.

Route Map.—A map of the route will be an obvious feature, showing the chief stations passed and the destination of branch lines; rivers crossed, and hills sighted will also be included. One can procure a railway time-table which contains a number of maps. The route is traced from the large maps, towns and junctions being added. Rivers and hill-land are added from an atlas. The teacher should refer children to the map if they ask, "Please, what river is that?" They may be encouraged to ask such a question as, "Is that the River Ouse?"

The Time-table.—School journey teachers have a form of time-table of their own. That given below will serve as an example. It will answer a large number of the questions children ask.

Miles from London	Time of Departure.	Station.	Notes.
113	10.12 a.m.	New Street, Birmingham.	
94	10.59 a.m.	Coventry.	3 spires. Motors. Bicycles. Watches. Silks.
83		Rugby.	Important railway junction. B.T.H. electrical works. Rugby school. <i>Tom Brown's School Days</i> . Birth of Rugby football.
63	11.23 a.m.	Northampton.	County town. Boots. Shoes. Leather tanning. Ironstone quarried and smelted from here to Blisworth.
47		Bletchley.	Junction for Oxford and Cambridge.
32		Tring.	Highest point 400 ft. Downhill now through Chilterns. Chalk. Grand Junction Canal alongside.
17		Watford.	Outer "suburb" of London. Note electric tube line on right.
12		Harrow.	Harrow School on hill (right).
5		Willesden.	Junction for London railways.
—	12.40 p.m.	Euston.	Terminus.

The Railway Line.—Embryo engine-drivers will have eyes for many of the signs displayed for the guidance of the driver.

Signals.—The signals which he regards, point to the left, away from the signal-post. Those with a V-shaped notch are called “distant” signals. The driver may pass those when not dropped, but he reduces speed and looks carefully for the next square-ended signal—which is called the “home” signal, which he must *not* pass until the signaller has pulled it down. The signaller does not release the pull to let it drop. The connecting wire might be broken accidentally, and that would lower the signal if it only had to be released.

Catch Points.—There is something about this sign which always attracts children’s attention. It is only found on an incline, and is so arranged that a train may safely pass in its right direction, but should a portion of the train break away, it is prevented from rushing down the incline for miles, and perhaps doing a lot of damage. The catch points will promptly shunt it on to a convenient side bit of land, where it will not be likely to hurt another train behind.

Distance Posts.—Every quarter of a mile is marked along a railway, the miles showing the distance, usually to London, but sometimes to some other big town or junction. The quarters are shown only by $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, or else by I, II, III. Boys with a mathematical tendency will love to estimate the speed by counting the seconds passed between the quarter-mile posts. The old photographer’s dodge of saying rapidly *dickety one, dickety two, &c.*, is worth handing on to the pupils. The number of seconds taken to traverse a quarter mile divided into 900 will give the speed per hour. The fastest speeds are not always on a down slope—certainly not if it is steep.

Gradient Boards.—These are placed at points where the slope or gradient changes. There are two arms, pointing up or down (or level), and the number on the arm indicates the degree of incline. Thus 300 on an arm means a rise of 1 yd. in 300 yd.

Gradients are worthy of a lesson in the classroom beforehand. A gradient of 1 in 70 is steep for a railway, and a heavy train would need

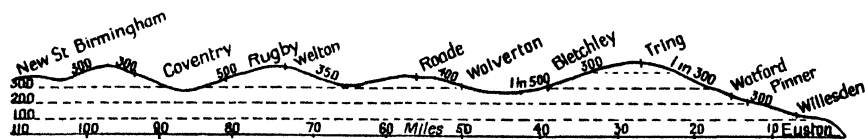


Fig. 2.—Section showing Gradients

extra help if this gradient lasted for any length of time. Railway engineers seek for the easiest gradients possible, and in hilly districts railways follow rivers wherever they can, because rivers cut down through hills and usually have a gradient which a railway can tackle.

The teacher may usefully construct a simple gradient section of the railway route. Railway engineers are usually ready to help an enthusiastic teacher, if properly approached. The teacher’s difficulty will be to simplify the very detailed data shown on the engineer’s section. This makes a

capital exercise for the teacher, whose job is to simplify things for his pupils.

The Birmingham to Euston section was prepared from a complicated diagram kindly supplied by the chief engineer at Euston. The position and height of the peaks were plotted accurately on a sheet of squared paper, but small rises and falls were ignored. Striking features of the journey are the very steep descents—1 in 70 from New Street, Birmingham, and again from Camden Town into Euston. But they are short ones.

Cuttings and Tunnels.—Railway cuttings are instructive. They are artificially constructed “valleys” for the stream of traffic to pass easily along. Like river valleys, their slopes vary according to the nature of the rock concerned. Every rock has its own particular angle, to which it settles after experiencing wind, frost, and rain, and woe betide the engineer who does not make allowance for it. Chalk, for instance, stands very well, almost vertically, and the engineer has only to cut a “square” cutting



Fig. 3.—Section showing the Rock Outcrops

in it. But clays slip and slither after winter's frosts, and the railway company has to buy land stretching out yards on each side to allow of a shallow V-shaped cutting. The tunnel is the railway engineer's last resource to get through high land, for tunnels are expensive to make and keep up, and particularly unpleasant in case of accidents.

Rocks Traversed.—The railway journey gives children a chance of seeing new rocks for the first time. It is not at all an easy thing to plot a rock section. The assistance of a geological friend may be sought for this, with a request for a diagrammatic sketch rather than geological accuracy. The one reproduced shows roughly how the journey is made over a succession of rocks which disappear in turn and dip down under London.

2. A Handful of Pebbles

If we take our children to the beach for a lesson, what more natural than a desire to throw stones, paddle, or romp? Is not that what a beach is for? Yet, when we first attempted a lesson on the “Pebbles of the Beach”, we gathered the class together and proceeded to introduce the subject by a revision of a school lesson on the chalk cliff, and the way the sea undermined it, bringing down the overhanging portion and pounding the soft chalk into mud and rounding the harder flints into pebbles. The children listened with obvious reluctance; they were surreptitiously playing with the pebbles and wondering how soon the lesson would be over.

The next time a pebble lesson was due, we tried another plan, which proved entirely successful and, to our mind, showed the best method of

conducting an open-air nature lesson. There was no "introduction". "Hold up your right hands. Now dig them deep into the beach and hold up the biggest handful you can get." Needless to say, the youngest and also the most work-shy pupil obeyed this order with alacrity.

"Open your left hand and count the pebbles one by one into it. Be careful not to miss one." They were then told to make a note in their books of the number of pebbles in a handful. This was repeated twice more and the results recorded. A boy was then asked how many pebbles his hand held, and gave the three numbers. We wanted to know *about* how many, and this led to a first lesson in averages for the majority of the children, many of whom were eleven years old.

Comparison of results showed that the number varied from 20 up to 90, and further investigation showed that the variation was due, not so much to difference in size of hand as in size of pebble. It was further discovered that, generally speaking, those who were nearer the sea had the smaller pebbles.

Size and Shape.—Still holding the pebbles, the children were taken down to the sand, spread out somewhat, and given the Montessorian task of arranging their pebbles in order of size, an exercise which the younger ones, at any rate, did with evident pleasure. The children were then invited to make an estimate of the distance across the largest and smallest specimen. Some were at a loss until one sharp lad thought of the inch scale supplied to the map in the guide-book. The two pebbles were drawn to actual size and the dimensions written across the diameter.

Attention was then directed to the shape of the pebbles, which was first given as round, then as oval—a flattened oval being accepted at last. Examination showed that while most were oval, there were exceptions. It is always a good plan to extend the child's vocabulary, and this seemed a good opportunity to introduce the word *typical*. They were asked to select a specimen which would show what most of the pebbles were like. A sketch was made, and underneath was written, "A typical specimen", the teacher spelling the word and advising the class to remember it, as it was a very useful word to have in one's list.

Four pebbles which differed most from type were then selected by each child from his collection and carefully sketched, "Unusual shapes" being written underneath. The suggestion was made that if the unusual shape was like anything they knew, it would be rather clever to write that down too.

Some of the most unusual shapes were exhibited to the class. Most of them had their corners rounded, but one was a new piece of rock. We sought for an adjective to suit these, and received "rough", "sharp", "cornery". An older boy suggested "angular", and this was immediately recognized as a suitable word for the unworn specimen. Teacher introduced "sub-angular" as a new word for the others, and this was equally welcomed; it was wanted and it sounded well. The collections were then sorted into rounded, sub-angular, and angular; the numbers



A Class looking for Fossils on the Beach



Junio's mapping a Square Yard on the Beach



Classification of Pebbles



Impromptu Dramatization at Corfe Castle

SCHOOL JOURNEYINGS—III

of each were written down, the older children being encouraged to work out the percentage of each.

Soon came "Why all these different shapes and sizes?" And teacher did not need to give a lecture on the subject—the process of pebble manufacture was described with lucidity by one of the pupils. Teacher moralized a very little about life and its experience rounding off one's awkward corners, and then, before interest waned, asked the scholars to pick out the pebble that had experienced the longest and hardest life of all, a problem that was not always solved correctly at the first attempt.

Composition of Pebbles.—This by no means exhausted the lessons to be learnt from our pebbles. There remained the more difficult one of their composition and where they came from. A second lesson was devoted to this. Again a handful of pebbles was taken, but this time shape was to be ignored—they were to be separated into groups according to colour. Considerable judgment was required here; but, roughly speaking, we obtained three groups—black, grey, and white.

Those who had knives were asked to scratch one of each kind to test hardness. The grey sandy-coloured ones could be scratched. One was broken open with a hammer, and proved to be made of clay limestone. The black ones were very hard, and could only be broken with difficulty. Sparks flew from these flint pebbles, which must have come originally from chalk strata. Where was the chalk? Some white pebbles were held up, but these did not look like chalk; they were not dull white, but crystalline; moreover, they were very hard. Why did we not get chalk pebbles? Had anyone ever seen a chalk pebble? Yes, near a chalk cliff. But chalk was soft, and so, of course, chalk pebbles would not last long; they could not be expected to stand the rough journey along the coast which the flint ones had survived.

The white crystalline pebbles proved to be very hard and brittle, like flint; they "flew" when broken, and emitted sparks. Here teacher had to help—and, as the story of these pebbles was a long one, he contented himself by saying that their material had probably come from the north of England or even from Scotland, whence they had been brought thousands of years ago by icebergs or glaciers to the cliff near at hand. Exceptional specimens were also found, including pebbles made of granite, brick, and glass, for the waves are quite impartial; natural or artificial corners are rounded off and the typical pebble outline is produced.

One Square Yard of the Foreshore.—On another day we found ourselves on a muddy, sandy shore sprinkled with pebbles. We could not grab a handful under these circumstances, but we tried an equally interesting method of attack.

The children ruled off on the sandy shore a square yard, and divided it into nine square feet. In their books they drew a square of 6-in. side divided into nine squares. Sitting down by the side of their square, the

children carefully made a map showing the position of every pebble in each square, and indicating roughly its approximate size and shape. There were three chief types—flint, septaria, and quartz—and these were indicated by different shades. Somewhat to our surprise, this exercise appealed very strongly to the great majority of the children, some of whom spent an absorbed hour in putting in a mass of detail. Later in the week they displayed no little skill in selecting suitable square yards to illustrate a point. A searching viva-voce examination afterwards showed that this careful mapping had enforced very close observation. The general verdict was, "I had no idea there was so much on the seashore." We commend the "detailed square yard" idea to those who teach in the open air; it is a most effective educational method and may be applied to the floor of the forest, a garden with weeds, or a salt marsh.

3. The Village

One great advantage the village possesses as an educational "object" is that the child can find out many things for himself, provided the teacher will suggest the problems which require investigation. It supplies a suitable and simple sociological study for town children.

As a rule, if a small village is made the head-quarters of a school journey, the children are boarded out in separate cottages. The method is cheap and the children get a close insight into cottage life; but food and accommodation vary, and the children miss a large part of the value of the school journey by not living and having their meals with their teacher. In several cases arrangements have been made for meals to be taken together in a large tent or village hall, the children only sleeping in the cottages, a plan which has much to recommend it.

The Cottage.—The town boy will, of course, be struck at once by the difference between life in a tenement and life in a country cottage, but unless encouraged he probably will not take the trouble to analyse the points of difference. Hence a set of suggestive questions will be useful.

Of what material is the house built—brick, wood, mud, or stone? Where does the material come from? (Not infrequently houses on the hill will be built of stone quarried from the hillside, while those in the valley where clay is more common, will be built of brick.)

Of what is the roof made? Slates (from Wales, as in London), tile stones (quarried locally), thatch, or corrugated iron? If of thatch, find out how it is built, how long it lasts, whether it keeps the house warm, whether it keeps the rain out, whether there is special danger of fire, whether it harbours insects?

How many rooms has the house up and down? Are they larger or smaller than those in town? How do the windows open? What is the fireplace like? What do they burn—wood or coal or peat? Can wood be picked up free? What is coal per ton? How does it reach the village—by rail, canal, or cart? Is there any very old furniture? Of what is it made?

Keep an eye open for grandfather clocks, old candlesticks and snuffers, old china.

Children should be encouraged to make copious sketches of anything which strikes them as curious or distinctive.

How are the houses lighted? and the roads? How do folks manage at night?

The Cottage Garden.—How large is the garden? Measure it, draw a plan and calculate the area. What is grown in it? Does it keep the family in vegetables and fruit *all* the year round? How are the potatoes stored during the winter? Does the man keep any animals? If he has fowls, how does he feed them? How many eggs do they lay per day? Are any sold? If so, who buys them—people in the village, or are they sent to town? How many eggs for a shilling? (Compare with town prices and explain the difference.) If pigs are kept, how are they fed? What does the keep of a pig cost per week? Does the man sell the pig or kill it himself for bacon? How is the garden manured? What rent is charged for the house and garden? (The low figure will probably come as a great surprise, and the children should be asked to think out the reason for this.) It would be rude to ask the host what he earns per week, but it should be possible to find out what villagers generally earn. The very low wages will be another surprise. How do they manage to live on it? Does the garden with the animals help to any extent?

Water-supply.—How many kinds of water are used? What water do they drink? Does it come from spring, well, or pump? The risk of contamination from sewage may be referred to, and the children should be especially warned not to drink from streams, except at well recognized drinking-places.

What water is used for washing? Why not wash in spring water? Investigation of live stock in water-butts will prove an interesting nature study.

The Village School.—A visit should certainly be made to the village school, where the visitors may see all the standards grouped in one or two classes. There will be little need to suggest questions on school life if the town and country scholars are allowed to spend a half-day together in school time. On one occasion a London school visited a village, and the village children, after giving a display of Morris dancing in the road for their benefit, accompanied them on an afternoon's ramble, the two school-masters taking it in turn to give short talks to the combined classes. It proved a most pleasant and valuable afternoon.

In some villages the speech of the natives will be very "broad" and contain local idioms or old forms of speech. Such interesting features as this would naturally form the subject of some instruction.

Town v. Village Life.—Children should be encouraged to gain all the information they can from the villagers concerning their work. Things are done on such a large scale in the city, that they have little opportunity of learning how various articles are made. The simple village life reveals

first principles. The village smith, baker, cobbler, miller, will, if properly approached, prove of very great assistance to the class in its studies of village social life. The farm is important enough to have a lesson all to itself; no study of country life would be complete without it.

The history of the village will often prove a fascinating subject for inquiry, better undertaken, perhaps, at the end of the visit than at the beginning. Why is the village where it is? How long has it been there? Is its population increasing or decreasing?

4. The Sand Dune and Marram Grass

The sand dune links up geology, geography, and botany, and provides unlimited fun as well as instruction. The visit can be profitably prepared by a classroom lesson on the making of sand; but all reference to the dune, its structure and plant life, should be left until the class reaches the spot.

Where Sand comes from.—The sand of our British seashore is composed chiefly of grains of silica, one of the commonest but hardest minerals we have. If the museum contains a good crystal—a hexagonal pyramid perched on the end of a hexagonal prism—it should be shown, and its hardness demonstrated by attempting to scratch it with a steel knife. Examination under a small microscope or good magnifying lens shows the grains to be sub-angular, that is, irregular but rounded. (Wind-blown desert sand becomes quite round.) The silica is derived originally from the breaking up of granite and other igneous rocks, from gneiss and similar “altered” crystalline rocks, and from the flint which is found in chalk and some other limestones.

Currents carry pebbles and sand many miles along the coast, so that although cliffs containing quartz or flint may be miles away, there are few seaside places that cannot produce sand at some states of the tide.

Experiments with Sand.—An important point in connexion with the sand dune is the shortage of moisture, the reason for which can be shown in the classroom. Fix up a couple of glass funnels, and fill one with sand and the other with dry soil, and then, pouring equal quantities of water on each, note (1) the rate at which water percolates through sand and soil; (2) the amount of water which gets through. It will be found that water runs very quickly through sand, and most of it gets through, whereas it runs more slowly through soil which also retains a good proportion of moisture.

The Sand Dune.—It is well to choose a time of low tide if possible, so that the source of the sand can be clearly seen. We shall then find a stretch of wet sand, followed higher up by a strip of dry sand, and then the dunes themselves. If the children are invited to lie down on the dry sand and watch very carefully, the chances are they will see the sand being blown along by the wind. If the winds blow with equal frequency from the shore and from the land, sand blown landwards would afterwards be blown back, and there would be no dunes. But the prevailing winds are

usually from the sea. If there are small trees at hand they should be noted, as they will be bent over away from the source of the prevailing wind.

Leaving the dry sand of the shore, the children can be allowed to scramble up the dunes. They will attack them energetically, and be surprised at their slow progress. When at last, breathless, they achieve the summit, they find a steep slope landwards. The temptation to glissade down is irresistible. The arduous struggle back is not so pleasant, but has its lesson. A look round will show that the dunes run in ridges at right angles to the prevailing wind, and that in every case the dune has a steady slope up from the sea, and then an abrupt drop on the other side.

Why is this? A close observation of ripple marks on the shore may help us. The sand is blown against some little obstacle—a shell, a piece of drift-wood or seaweed. The obstacle is soon buried, but a ripple of sand has been started, up which the wind keeps on adding sand. A strong puff carries some grains to the top, and this rolls down the other side. On the land, untouched by waves, these ripples grow and grow, often to a great height farther inland.

The Marram Grass.—It must be a very exceptional plant which can find an existence in dry, drifting sand, but the marram grass is specially equipped for the purpose. Gathering the children round us, we select a good strong specimen, and carefully scrape away the sand to show the long, creeping, underground stem. We give a tug, and draw out perhaps a couple of feet. "That," we say, "is how *not* to do it. The game we are now going to play is to see who can get the longest complete stem."

"Why do you say stem, and not root?" asks a thoughtful pupil.

"I will answer that question presently if you have not found the reason yourself. Scatter widely, and go very carefully to work. It may be well to work in pairs. Please yourselves."

"Sit down and let us examine our specimens. What do you notice about it?"

"It is white." "It is like a cord." "It has knots in it."

"And at the knots?"

"There are little roots which go down into the sand, and stalks which shoot up to the air."

"Exactly. And that is why we call it an underground stem; it sends up shoots. Those who are fond of new words can write down *rhizome*."

"Now for the leaf. What is its colour?"

"Green."

"Why green?"

"Because it gets the sunshine."

"Its shape?"

"Long, narrow, tough, pointed, curled in."

"Quite right. It is because of all these things that the marram can grow on such poor soil as the dune. You remember the experiment in the glass funnel. What did we learn?"

"Water ran through sand quickly, little remained, and the sand was soon dry."

"Finger the sand. Should you say there was much plant food in this clean white sand?"

"No."

"Therefore the marram has to search in all directions for food and moisture, and the long creeping stems do this. Shoots are sent up at intervals to get plant food from the CO_2 of the air. There is something else these twisting stems do. Look at the knots and little roots."

"They hold the sand together."

"A good answer. They help to prevent the sand from being blown inland. That is why people often plant marram shoots in dunes to keep the sand from coming on to their fields. Before we go I shall ask you to plant half a dozen shoots each, to repair the damage we have done to-day. Having worked so hard to get moisture, will the plant want to hoard it carefully?"

"Yes."

"How does a plant lose water?"

"By the sun shining on the leaves and dry winds blowing over them."

"Examine the leaves and see how they give the sun precious little chance of robbing them of moisture."

"They are folded up tight." (On a damp, misty day they open.)

"Now take out your books and make a sketch of a *portion* of your specimen, showing particularly the knots, the rootlets, and little stems thrown up. And the leaf, of course."

THE CINEMATOGRAPH IN SCHOOLS

BY

J. C. STOBART

AND

MISS L. LOCKET

THE CINEMATOGRAPH IN SCHOOLS

CHAPTER I

The Picture Theatre

There is no question about the potency of the film *out* of school. It has been calculated that the number of English people who visit the picture theatre every week is greater than the entire population of England. Anyone familiar with social conditions in the suburbs of London and the industrial cities of the Midlands and North is bound to be aware that picture-going has entered deeply into the social habits of our people.

It is manifestly impossible to disestablish this habit, and therefore useless to waste words in deploring it. Undoubtedly it will grow. The future is with the moving picture. Already it talks. Soon it will be in three dimensions, that is, stereoscopic, and in colour. Its voices and musical accompaniment will be improved beyond recognition. Theatres will become larger, cheaper, and more comfortable.

Before we ask what is to be done about it, we should first inquire what is the cause of this immense and growing popularity. The answer is simple. The people, and especially the young people, thirst for *life*. The more work is specialized, the duller and narrower it becomes, and the greater the need of escape.

And now for the second question: What are we going to do about it? In the first place, educationists must now adjust their theories to meet the new facts. We are not asking them to make terms with the Devil when we ask them to realize that among Nature's provisions for the growth of the child is that tremendous curiosity about Life—that insatiable appetite, which may be quieted or even suppressed in time by scholastic counterfeits of literature, art, religion, and history, but never utterly quenched.

But, supposing that the picture theatre as we know it misrepresents life? What then? Suppose that the great majority of the films available are designed and directed by aliens utterly regardless of education and utterly unconcerned with truth, but concerned only with popularity and the consequent box-office receipts. The momentary titillation of the

senses for the immediate pleasure is notoriously the worst enemy of happiness. Happiness, at which education aims, is a lasting possession, truly to be enjoyed only by the well-equipped mind in the healthy body; and if the film is merely to blunt youthful appetite by precocious surfeit, then it is to be accounted an enemy.

It may even be worse than that. Suppose that the film consistently teaches false ideals and values that, according to British standards, are definitely wrong: suppose that, instead of virtue, clever wickedness is triumphant in the film stories, that cruelty and injustice are consistently shown to be profitable, that innocence and simplicity are represented as qualities always associated with ridicule and failure, that wealth and luxurious living are the main incentive to work, and that pleasure is the reward of endeavour. What then?

Why, then, presumably, British educationists would have to fight the film as the Devil incarnate. They would have to get the authorities to make by-laws forbidding the attendance of children of school-age at picture houses altogether. And the authorities could make further by-laws prohibiting the exhibition to any young people of any film not passed by their own local board of censors. Such prohibitions would be within their powers and, if the film were really noxious to morality, such prohibitions would have the assent and applause of all reasonable people. The powers of local authorities are wide and strong, here, in America, and in our Overseas Dominions. Hence it does not pay to produce really immoral films, and it is due to stupidity rather than immorality that so many imported films express a low moral tone.

The conclusion of this part of the argument relating to films exhibited to young people out of school and out of school hours is that there should be a careful scrutiny of all films exhibited to young people—a scrutiny not narrow or puritanical, but rigid in excluding anything that corrupts or perverts the social code—and then children and adolescents can be allowed to visit, and even encouraged to visit, the picture theatres regularly as part of their education. This does not mean dull or pietistic pictures. The follies and vices of mankind have always been the proper targets of humour and satire.

The facts and figures quoted above give no warrant for panic. Even if the great majority of films are American and therefore often a little crude in conception, according to the standards of an ancient civilization, it must be remembered that the American people are predominantly akin to us. Whatever may be the social reputation of Hollywood, it would be ridiculous to charge the American film with immorality or deliberate perversion. In the average American film virtue triumphs, and the general tendency of the picture house is unmistakably on the side of the angels.

To rebut the wild and ridiculous indictments drawn up against "a whole nation" by some educationists is not, of course, to express contentment with the commercial picture theatre of our day. In certain points it is, according to British educational ideas, quite definitely bad. For

example, its crude posters teach bad art and excite passions of violence and lust. Its "captions" teach vulgarity and slang tending to corrupt the English language even to its spelling, and when the "movie" is fully transformed into the "talkie" it is to be feared that the fashion of English speech may also be subject to corruption. For these and other reasons British educationists must offer their prayers for the continued progress of British film production. But there is no need to take the present situation too tragically. Children have a great power of resistance to evil. Children, as a rule, are bored by love scenes and sex-appeal, they live for adventure and fun. The American world they see in nine out of ten films is accepted as a queer convention. It is only in the case of children naturally unstable that mischief is done.

A good deal depends upon the attitude of the teaching world towards the cinema. To treat it wholly as a thing unclean is contrary not only to the doctrine of Peter's Vision, but even to common sense. Let us assume that theatre proprietors are bound to study box-office returns, yet they are not inhuman and they know that teachers are people of power and influence. It is for the teachers to demonstrate this with tact and discrimination. Let them make friends with the picture people, and by judicious praise and blame indicate a standard of educational judgment. Praise of what is sound and good is probably more effective than criticism.

There is little doubt that the picture theatre taken on an average and not at its worst has something of value to contribute to education. It stimulates the mind and provides a background of fictitious experience upon which the mind can work. The shut-in children in the remote village or in the institutional home present a problem over which many brave men and women have broken their hearts. Their range of vision is so limited that they hardly understand the words in the simplest of books. Some educationists argue that imagination is blunted by experience. We do not believe that theory. Imagination must have food and stimulus before it can function.

Moreover, if there are masses of poor films and a good many downright bad ones, a certain number of good ones find their way even into the cheap picture theatres. Such popular historical films as *The Scarlet Pimpernel*, *Ben Hur*, *Uncle Tom's Cabin*, *Robin Hood*, *The Three Musketeers*, *The Great Adventure*, may not satisfy the historian, but they may create a taste for history. In the same way the literary purist may gnash his teeth over some of the liberties which the producer has taken with the sacred text of say *Lorna Doone*, or *Rob Roy*, or *Oliver Twist*, or *Treasure Island*, but it may well be that such films will set the young spectator on the way to read these and other books by the same authors. One State Library in America reports an increase in calls for books of 35,000 in one year, especially in rural districts where the demands are generally for books that have been filmed—*A Tale of Two Cities*, *Uncle Tom's Cabin*, *Lorna Doone*, &c. This is attributed to the influence of the films.

Certainly geography has more meaning when the pupil has seen such

lands as Mexico, Arizona, Switzerland, and New York in a dozen films. This for him is the next best thing to travel. The "Graphic" or "Topical" news film must increase general knowledge. The picture-going child cannot fail to know the appearance of the King, the Prime Minister, and the Presidents of France and the United States, and now that we can hear, however imperfectly, the voices of such personages, we have a tremendous power leading to more intelligent citizenship.

Many of the nature films, especially slow-motion pictures, are extremely successful in showing the processes of growth. The depiction of processes is in fact essential, since for scenes the lantern slide is better. The film is admirably adapted for showing work, and it has been used extensively in the U.S.A. for giving children an idea of the various activities in which they may be called to take part, and even helping them to decide on their choice of future occupation. In the same way, films showing skill at sports have been used widely in public schools and elsewhere for teaching purposes. Life and conditions of life in the Dominions can be used to encourage and direct emigration. There are admirable films showing life in foreign countries, for example, *Malta and its Peoples*, *The Hot Springs and Mountains of New Zealand*, and *Gibraltar*. Films showing the life of a river or a stream may be of use to teachers of geography.

In its potentialities for promoting international understanding the influence of the film can hardly be overestimated. It can reveal the children of many lands to each other; their customs and handicrafts, their home life and joys, and the common necessity for the blessings of peace and security. *Nanook* and *Moana* are classic examples of such films, and more should be developed on the lines of a series recently produced in America by a woman director, showing the life of everyday children in such various countries as Holland, Scotland, Switzerland, and New Mexico.

In general, we can cordially endorse the remarks made by H.M. Inspector, Mr. H. J. R. Murray, at the Imperial Education Conference in 1927. Mr. Murray throws some doubt upon the use of the film in school work for actual teaching or training, but he recognizes its excellence in the sphere of "influence". The film must give a message and make an emotional appeal. "The film," he says, "seems admirably suited for the purpose of suggesting interests, of widening experience, of adding to that miscellaneous store of information which adds so much to the understanding of life."

To many educationists, the training of good taste is one of the strongest points in favour of the use of the cinema when a regular supply of first-rate films can be assured. There are, however, certain misunderstandings connected with the training of good taste. The word "good" in this connotation can hardly imply anything except teachers' taste. The devotees of free will and free choice are a little suspicious of premature training from this point of view. Is not the real basis of a good taste a good appetite? Will not taste refine itself and be at the same time eager, sincere, and discriminating if it is allowed to begin with a somewhat catholic enjoy-

ment? In fact, juvenile taste cannot, in the nature of the case, be sincerely identical with adult taste. The young may be expected to enjoy things a little crude and even garish. As time goes on and experience is gained, the cruder stuff will cease to attract; the garish will be recognized as superficial and vulgar. In literature, it seems that it is the omnivorous young reader who becomes the discriminating, cultured reader in after life, while the child who is too much trained for "good taste" tends to become the dilettante and the high-brow. But the moral of all this is once more—plenty of good food. Therefore we say again, put before the child every possible manifestation of beauty, taking the widest possible sweep, and not too much emphasizing the taste of the elder. Appetite first, good food—and refinement will follow.

CHAPTER II

The Film as a Teaching Medium

History

It is now necessary to examine more closely the actual relations between the film and the school, and its official relations to the Board of Education and the local education authorities. It is clear that the Board of Education have been watching the educational possibilities of the film with close attention since 1920, and even longer. The cinema was on the agenda for the Imperial Education Conference of 1923, when a committee of the cinema industry exhibited by request a display of educational films at the Central Hall, Westminster. Lord Gorell, who was chairman of the demonstration, explained that the committee fully realized that the films which had been shown, though selected with great care from a very large number of so-called "educational" films, were open to criticism from the educational point of view. This can be confirmed unofficially by one of the present writers, whose unfortunate lot it was to see more than a hundred of the films submitted by the cinema committee responsible for arranging the exhibition. It was lamentable to see how far the trade was in general from appreciating what would be suitable for exhibition in a school. It was pitiful also to realize how much money, time, and thought had been misdirected through want of knowledge. There were historical films in which the floors of baronial mansions in the fourteenth century were carpeted with axminster pile rugs, and a mediæval monastery was approached by an asphalt sweep. It was with the greatest difficulty, even in the year 1923, that the committee were able to select a sufficient number of reasonably adequate educational films to be exhibited to a body of experts. In the course of a discussion which took place afterwards, almost everybody commended the film from the theoretical point of view as an important possibility in school work, and as an inevitable influence

upon the life of the youth of all the peoples of the Empire. It was pointed out by Sir A. T. Davies that the industry was asking for guidance, and the following resolution was passed unanimously on the motion of Mr. F. Tate of Victoria:

"That in the opinion of this conference it is desirable that a central committee should be established in London to explore in concert with the leaders of the cinema industry the possibilities of utilizing the cinema in the service of public education, especially through the ordinary routine work of the classroom."

In consequence of this resolution a strong committee was set up under the chairmanship of Lord Gorell. The membership of the committee combined representatives of the cinema industry (both the makers and the distributors of films) and a number of educationists representing all the principal educational bodies in the country. Their report, which was issued in 1924, can be obtained from H.M. Stationery Office, price 1s., and is deserving of close study by all who are interested in this question. Among the general conclusions of the report are the following:

- "(a) A strong *prima facie* case has been established in support of the view that the cinema can be of real value as an adjunct to present educational methods, that properly used it may be of great assistance by way of illustration, and that it should accordingly be recognized as part of the normal equipment of educational institutions."
- "(f) That films for use in school should illustrate the actual lessons that are being taught, the principle being always kept in view that films should fit in with the ordinary work of the school rather than that the curriculum should be interfered with to meet particular films. Longer and more general films, shown to large classes or the school as a whole, as additions to the regular work may be of educational value if carefully chosen and made the basis for essays or discussions, but these are quite distinct from the educational film proper for use in actual connexion with class work."
- "(g) That the educational film as referred to above has yet to be evolved by the co-operation of those who have technical knowledge of film processes and possibilities, and those who have practical knowledge of the requirements of the teaching profession."

The committee recommended that the inquiry should now be taken up officially by the Board of Education in the interests of the Empire as a whole. They drew attention to the action of the State in France in assisting the use of the film for educational purposes. The Board's representative, Sir Edmund Phipps, however, in signing the report, made a reservation as to this last recommendation.

The third meeting of the Imperial Education Conference took place

in the summer of 1927, and once more the cinema, along with broadcasting, took its place in the proceedings under the heading of New Ideas and Developments. The delegates were enabled to visit an exhibition of educational films and cinema apparatus organized by the Federation of British Industries. On another day, the delegates visited the film studios of British Instructional Films Ltd., and were shown the stages in the manufacture of educational films of various kinds. On yet another afternoon, they saw at the Imperial Institute a number of films illustrating the life and occupations of people in various parts of the Empire. The report of Lord Gorell's committee was laid before the delegates, as were also memoranda from the Imperial Studies Committee and the Federation of British Industries. The special session devoted to a discussion of this matter was opened by Mr. H. J. R. Murray, Divisional Inspector of the Board of Education, whose report has been mentioned above. Mr. Murray argued against the use of the cinema in the classroom by saying that the modern trend in classroom work is towards the individual pupil and away from mass methods. Its use was opposed to the general tendency of the best educational practice, so far as the two processes of equipment and training were concerned. He thought, however, that the third process, that of influencing the emotional attitude of the pupils, was one to which mass methods were not necessarily inappropriate. He said it was curious that this promising field had not been more thoroughly explored by producers and users of educational films.

The Conference heard discussions of experiments made in Ontario, where the Department of Education, in co-operation with those of Health and Agriculture, has manufactured its own films and controlled their distribution to schools. The report of the English Ministry of Agriculture explained the steps taken by that Ministry to produce films. The arrangements made by the Government of Southern Rhodesia to provide schools with projectors and suitable films for exhibition outside school hours were also described. It was generally agreed that the time available for ordinary school work was so limited at present that the cinema should not be permitted to encroach upon that time, but that local education authorities might well co-operate with the exhibitors of good educational films in arranging exhibitions for children. The suggestion was made that it would be extremely useful to the Colonies to have some central body who could either undertake to select and distribute good films, or failing that, to prepare and circulate a catalogue.

The full report of the proceedings of this Education Conference can be purchased from H.M. Stationery Office, price 2s. net, and at the price of 1s. net, Mr. H. J. R. Murray's speech on *The Use of the Cinematograph in the School* may be purchased as a separate pamphlet, as may also a list of books on *The Cinema and the Child*, and a memorandum concerning the use of the cinema in increasing the knowledge of the Empire, submitted to the conference by the Imperial Studies Committee of the Royal Colonial Institute, now the Royal Empire Society.

The desired catalogue of educational films has been supplied by the Federation of British Industries in a pamphlet published by them in 1928.¹

The preface to this report states that it has been issued under the auspices of the Film Manufacturers Group of the Federation of British Industries, who have felt that a first and necessary step towards encouraging the use of the film in education would be the existence of a comprehensive catalogue. They add the caution that no guarantee can be given that every film will be considered by all teachers as of educational value. This catalogue will be found extremely useful by any teacher who proposes to use the film in school. It contains also a list of projectors suitable and available for classroom purposes. Films are classified under these headings: Agriculture, Botany, Engineering, General Knowledge, Geography, Health, History, Industries, Natural History, Physiology, Scripture, Sports, Zoology, Travel. These headings fairly represent the classes of films now available for schools. The list is weak under the headings of Agriculture, Botany, Engineering, Physiology, Health (here there is only one film, *The Housefly*), and History. It is particularly strong under General Knowledge, Geography, Industries, Natural History, and Zoology.

The official attitude, from 1923 to 1930, towards the use of films in school was generally that, while supplementing and providing a background for the instruction given in schools, their use in the classroom itself was out of proportion to the cost. However, with the Imperial Education Conference of 1931 in view, the reply of the Minister of Education to a question asked in Parliament on 18th July, 1929, is interesting. He was asked "whether he would consider the advisability of setting up a committee to inquire into the use of the cinema as a method of education in our schools as is the practice in many continental countries". Sir C. Trevelyan replied that "the use of the cinema as a method of education in schools has been considered on two occasions by the Imperial Education Conference and was the subject of a report by a committee of which Lord Gorell was chairman in 1924. I am, however, disposed to think that there is a case for a further examination of the question, and I am considering what steps can be taken." The new committee, here foreshadowed, was formed in 1930.

It is interesting, but perhaps not very profitable, to speculate upon the causes which have led to this attitude of extreme caution in the official outlook towards the film, and to the failure of the educational film enthusiasts to impress the local education authorities and the teaching world in general with the claims of this instrument. The following may be put forward tentatively as possible explanations:

1. The production of educational films has not appeared a sufficiently lucrative business to the big producers.
2. In spite of technical improvements, the cinema is still a somewhat expensive and difficult instrument to handle in the classroom.

¹ *Catalogue of Educational Films and Projectors*, compiled by the Federation of British Industries.

3. The use of safety projectors and non-inflammable films generally implies a limitation in the range of film material available.

4. The use of the epidiascope, a machine for projecting pictures in black-and-white or colour by reflection through a lantern on to the screen has provided a cheaper method of illustrating classroom lessons.

5. Frequent and growing attendance of children at entertainment films, many of which are felt to be antagonistic to the best interests of education, has led to an attitude of suspicion and mistrust of this medium among teachers.

In short, although real progress has been made in many quarters, notably by the work of the British Instructional Films Company, the film is still somewhat difficult to handle as an adjunct to the curriculum of the school. It is more expensive, more complicated than the lantern slide, and even that is not as freely or frequently used as educationists might hope. It requires a certain amount of forethought and trouble to get the right lantern slides into the classroom on the right day, though many County Authorities supply lanterns on request, and publish catalogues of slides with regular additions. For example, the L.C.C., the Middlesex Education Authority, and the Kent Education Authority all publish in their gazettes fresh additions to their list of slides. The catalogue of the Federation of British Industries will to some extent supply this need for information regarding educational films, but it is still a scanty list, and is very far from supplying the teacher with a sufficient choice for the illustration of his lessons. In fact, a teacher who installs a film projector in his school is still almost bound to adapt his lessons to the films rather than select the right film to illustrate his scheme of work.

A number of local education committees have attempted to develop in some measure the use of the film as an educational medium by periodical exhibitions at a local centre, where films to illustrate some central theme are shown. Teaching notes are provided for the teachers concerned. Among education committees that have experimented on these lines are Oxford, Manchester, Liverpool, Bristol, &c.

But the fundamental difficulty for the teacher lies in the fact that there is no central body in a position to organize and direct the supply of educational films when and as required. It was hardly to be expected, in view of their known policy and practice, that the Board of Education would take part in such an organization. This must have been clear from the time when Sir Edmund Phipps reserved his assent to paragraph 25 of the report of Lord Gorell's committee. Failing the Board of Education, it seems necessary that there should be some duly constituted body representative of the industry and the schools. It is difficult to see at present how such a body could be constituted with sufficient authority. The organization of education in this country appears defective in this point. The Board of Education will not intervene in the supply of necessary materials to schools, either under the heading of books, stationery, furniture, or equipment of any kind, such as scientific instruments, film projectors,

and films, wireless receiving sets, lanterns, epidiascopes, or any such apparatus. On the other hand, the education authorities, which number over 300 in England alone, imitating the example of the Board of Education, are apt to leave such supplies to the teachers' requisitions, subject to very narrow financial limits and very strict scrutiny by clerks at the education offices. Thus the responsibility is thrown back, rightly perhaps, upon the head teachers themselves, who have to decide whether they need most a new piano or a new history book, or whether they will earn more commendation as economists by saving money at the risk of starving the scholars. Germany has her Zentralinstitut, with its various branches, and France her Musée Pédagogique. Britain has nothing analogous. The various interests affected have to approach thousands of head-teachers individually, and all in commercial competition with one another, or with the appearance of commercial competition. The remedy is obvious. It seems probable that a better organization would supply teachers all over the country with the material they need, tested and selected by representative educationists with the necessary qualifications, but still affording sufficient freedom of choice to the teachers without the clamour of competing interests. Such a body could obviously fill up gaps, and commission material of the highest value. If it could secure the encouragement of the Board of Education and Education Authorities, it could probably do its work without entailing any cost to public funds and would indeed effect considerable economies.

Some such attempt has been made by the formation of an Educational Films Committee under the auspices of the Association of Scientific workers. A number of the teaching associations are represented on the committee and an unofficial observer has been appointed by the Board of Education. The object of the committee is to explore generally the field of educational cinema, with a view to the establishment of a central organization for educational and cultural films.

The British Films Services Board, under a president and an honorary advisory council, has for its object the collecting, editing, and circulation of the best type of film, both of this and other countries.

International Cinematographic Institute

There have been several attempts to forward the interchange of educational film information and facilities in different countries, and the League of Nations has created an international bureau to co-ordinate developments in the production and distribution of educational films all over the world. This bureau, the International Educational Cinematographic Institute, has its head-quarters in Rome and purposes "to make known the best methods of utilizing the educational cinema so as to bring about a better understanding between peoples and to provide instruction in the different branches of human culture and social activity, with a view to making the best use of international effort and intelligence".

CHAPTER III

Methods of Utilizing the Film for School Education

Broadly speaking, there are four distinct methods of using the film in or in connexion with a school: (1) by means of organized visits of school children to exhibitions specially planned and prepared by teachers or local education authorities; (2) the utilization of educational films in school halls for general education purposes; (3) the use of small portable projectors in classrooms for the purpose of illustrating particular lessons; (4) the use of films made for teaching purposes by teachers and exhibited on their own apparatus as above.

Past Experiments

As shown in the report of the committee on the use of the cinematograph in education, many local education authorities have organized visits of schools to picture theatres to see educational programmes specially arranged, some in school hours and some on Saturdays. The L.C.C. had a regular series of such exhibitions at the Kingsway Hall. Every Saturday the children from certain nominated schools were taken to a free exhibition of educational films. This practice, however, was hampered by the legal decision that the L.C.C. were not entitled to spend the ratepayers' money on entertainment out of school hours. In some instances the children have paid for their seats, for example at Battersea. Visits are organized by a committee of school teachers, who make the necessary arrangements for the safety of the children and select the films; performances take two hours, and the children pay 2d. each for admission. The programme consists of two educational films, a clean wholesome comedy, and a film (drama or history) of the type which children would see at an ordinary picture house, but censored. All the films are what is called "universal films", that is, they have been passed by the censor as suitable for children under sixteen years of age. Mr. H. J. R. Murray reports, however, that these experiments offer a curious commentary upon the weakness of the educational film which has hitherto been produced in this country. "Battersea children have no high opinion of the educational film. They detect the pill and have to be bribed by entertainment films, or they would not pay for admission." In Liverpool similar exhibitions take place within school hours. The performance takes one hour, and the children do not pay for admission. The programme only includes educational films. In this case, therefore, the children have no chance of making their likings known. Many other authorities have tried this method. Sometimes picture theatres are taken on such occasions as Empire Day, and films suitable to the occasion are produced.

A somewhat elaborate experiment of this kind took place in 1922, at Denton in Lancashire. It is described in detail in the report of the committee on the use of the cinema in education presented to the Imperial Education Conference, dated 1924. The report on the whole is not favourable, the concluding comment being: "Of the films generally, it may be said that their spectacular and pictorial interest was much more evident than their educational purpose. There was in most cases a tendency to crowd too many points into one film. There was little discrimination between the relevant and the irrelevant, and insufficient emphasis on what was really important. An effective working partnership between the film producer and the educationist has yet to be established."

Again, in Banbury, in 1920, a series of three school visits under Article 44 (b) of the Code was arranged by the Education Committee of the borough of Banbury on three occasions, when a demonstration of moving pictures illustrating the schools' studies was given in a local picture palace. Five public elementary schools each sent thirty boys and thirty girls over 11 years of age under the charge of a responsible teacher. It was understood that these exhibitions were to be preceded by lessons on the pictures to be illustrated, and succeeded by tests in written composition on the impressions carried away by the scholars. H.M. Inspector's report complains of faults of organization, for example that the pictures shown were not in all cases those of which notice had been given, that there was no commentary or explanation, and that the introductory "rubric" passed too quickly to be understood. H.M. Inspector says: "I do not hesitate to say that the educational value of the exhibition was extremely small." Another comment is this: "If possible it would be a good thing to have the rubric in English instead of American, but as this is probably a counsel of perfection, we must prepare to meet *center*, *traveler*, and *altho* in our school compositions."

In West Ham also in 1920 the Head Teachers' Association witnessed demonstrations of portable cinema apparatus arranged by certain firms. They concluded, however, that until the exact psychological effects of the cinema had been investigated and an adequate supply of really suitable films was assured, they would not recommend the expense of procuring machines for schools. The secretary to the Ealing Education Committee reported upon an experiment made in his borough in 1920, when a small theatre was secured for two exhibitions one morning a week, when 500 children attended with their teachers. The films to be exhibited were selected by head-teachers in advance from catalogues obtained from the various film companies, and dealt for the most part with scientific and geographical subjects to fit in with the school curriculum. Great difficulty was experienced in getting the films at the particular time they were required. The experiment was not, he said, as successful as they could have wished, and the usual objections were raised, namely, the stuffiness of the atmosphere, the long walk to the theatre, frequently in rainy weather, and the bad effects of continuous cinematographic movements on the children's eyesight.

In short, out of the whole number of reports embodied in the document referred to, there is not one which speaks whole-heartedly of the educational success resulting from the visit of school children to public exhibitions of films. There is a general agreement that they *might* be successful, but a general complaint that the organization breaks down if the films are not entirely suitable, that is, not entirely educational, and that they are not sufficiently intelligible to the children to make their due effect.

Future Possibilities

We think, however, that it would be a pity to leave the matter here for several reasons. In the first place, we do not altogether accept as final H.M. Inspector's ordinary valuation of what is and is not "educational", as applied to anything young like the film. We think it rash to measure the influence of the film exhibitions, even if they were not perfectly organized, fully explained, and thoroughly tested, by means of composition afterwards, upon the mental and spiritual make-up of some of the hundreds of school children who saw the pictures. Did they open windows on the great and strange world of foreign travel, strange animals, the wonders and glories of nature, for little children accustomed to nothing more than the slum or the street? Moreover, as time goes on, the stock of good educational films undoubtedly becomes larger.

Several of the learned societies, and in particular the Historical Association, are willing to give expert advice on the making of films. More than this, they have actually prepared the scenario for more than one historical film, and have initiated an interesting experiment in collaboration with the Carnegie Endowment. This is a year's research into the teaching value of historical films to be carried out under the auspices of Leeds University and the Education Authority of that town.

The Geographical Association and the Imperial Studies Committee of the British Empire Society are also willing to help. In one or two cases, these societies have assisted in the making of a film with successful results, though it must still be doubted whether the film frankly educational in its motive can ever compete successfully with the entertainment film in the entertainment picture house. It is hardly likely to do so if it is definitely labelled as educational. So much the worse for education! We think it clear that the film is, as the British Empire Society have stated more than once, an invaluable medium for giving instruction about the British Empire, not only to children at home concerning life in the great dominions, but also to children in the dominions concerning life at home. A recent tour in Canada gave convincing proof of this fact. Children in England simply cannot realize the normal phases of life in the Dominions. As we said before and cannot repeat too often, life is what they want to see, and life is what the film can give.

Another point seldom noticed is that for children, recent history is best shown through illustrations. The film has had nearly forty years of

life. Many grown-up spectators must have been deeply impressed by Mr. Hepworth's film—*Through Three Reigns*—beginning with the state processions of Queen Victoria. It would be a thousand pities if we failed to establish a national gallery of films of historical importance. A very grave difficulty of our historical teaching is the fact that we generally seem to stop short—possibly through fear of intruding on difficult political ground—about a century before our own times. To make young children appreciate the reality of historical teaching, there can be no better method than to show them the evolutions of fashion and social custom during the generation immediately preceding their own.

The Film in the School Hall

In boarding schools, public and private, it is generally the custom to have school gatherings once a week, usually on Saturday night, for general cultural purposes, sometimes a concert, sometimes a lantern lecture, sometimes a film. The film is being increasingly used for this purpose. In day schools, the latter part of Friday afternoon is often used for similar purposes. Such gatherings are generally regarded as partly recreational, and there is no objection as a rule to the insertion of one or two good comic or entertaining films in the programmes. It is worth while to recall that the Imperial Studies Committee reported in 1927 strongly in favour of incidental education in film programmes. "Empire films," they say, "must be frankly of entertainment value yet subtly Imperial. Not only must their ideals be sound, but their production must also be technically first class." They emphasize the necessity of emotional appeal. If this means importing a love interest into the educational film, it may be doubted whether many schoolmasters would agree. They would certainly prefer to have no films in the school rather than to have sex appeal. But if the word "emotional" implies such sympathetic and patriotic appeal as is contained in a film like *With Scott in the Antarctic*, or a film of Livingstone or Abraham Lincoln or Florence Nightingale, most teachers would agree. They would certainly agree that education must not be associated with technical inferiority. But it is probably a counsel of perfection to ask producers to lavish as much wealth of display upon educational films as upon the big world-wide entertainment productions.

Important work can be done, however, in the re-editing of material selected from good theatrical films. Selection and arrangement should be done by the technical film experts in collaboration with the educationists. In this way, with expert titling, a film of first-class technical quality and definite instructional value could be made available at comparatively small cost. Such a film as *Shiraz*, a story of old India and the making of the Taj Mahal, a film of great beauty produced in India with native actors and under the auspices of native authorities, could yield material for an instructional film of much historical interest. One of the films now being used in the experiment of the Historical Association is *Roman Britain*, an attempt to reconstruct the life of ancient Britain, which was prepared

in exactly the manner described above. Purely theatrical films such as the *Divine Lady* and *Ben Hur* are often produced with such attention to truth in the details that they may yield valuable material regarding the everyday life and habits of the period.

The film *Britain's Birthright* and the semi-official films taken in connexion with the travels of the Prince of Wales present a good example of the difficulties to be faced. A great deal of cost was involved in each case, and there was excellent photography. The Imperial Studies Committee helped to plan *Britain's Birthright*, which was intended for general distribution as an entertainment film. We may therefore quote the committee's opinion: "These films are not entirely satisfactory for conveying accurate knowledge of the Empire, since of necessity they depict the regions dealt with rather in gala dress than under their ordinary everyday aspect."

From the various reports issued by the Board of Education and quoted above, it appears that among public schools Oundle has been a pioneer in the regular use of the film for general educational purposes, and among secondary schools the Northampton County School for Girls and the Brighton Municipal Secondary School are specially mentioned as having installed the cinema. Among elementary schools, the Jews' Free School in East London has acquired through private generosity a regular fire-proof installation. The Community Service Bureau has made a special study of the difficult art of lecturing to the film, and has been conducting a course of training in film lecturing for the benefit of teachers. Several of the reports draw attention to the want of success in this line, as children assembled in their play-time to see films are found to be somewhat impatient of spoken introductions. The *Travelogue*, as it is called, has, however, proved successful from time to time, not only with education audiences but with adult audiences paying for admission.

It must be obvious that for a large audience in the school hall there must be a full-sized picture and a powerful projector. The light portable projector is not suitable for this purpose. It is equally clear that for a mass audience of three or four hundred children there must be very special precautions against the risk of fire. It is scarcely possible to dispense with a fireproof projecting-room, which again implies a trained operator and an operator's assistant. Moreover, for school exhibitions, there ought to be a subdued light and proper arrangements for ventilation. The ideal arrangement is, of course, that new schools should be equipped with halls or auditoriums capable of being transformed at will either into a picture theatre or a concert hall or a theatre or a wireless receiving station. Such an auditorium is no dream.

The Film in the Classroom

In the classroom, the control of the film will naturally be in the hands of the school teacher. The audiences will be limited to the class, that is, to some number under sixty, more probably fifty or forty. In this case there is no need for large pictures or powerful enclosed projectors. Here

the portable projector and the undersized film will be in place. The regulations of the local authorities have in most cases been considerably relaxed so as to admit the use of portable projectors and "non-flam" films under reasonably safe conditions in school classrooms. Here the chief difficulty is to obtain at the right moment the film which will exactly illustrate the school course. The inspectors cannot be expected to give their blessing to geography courses which have to be adapted at the last moment to suit the film which may be available from the distributing agencies. Many a scheme has already broken down for reasons of this kind, and it must be admitted that even such a catalogue of films as is provided by the Federation of British Industries includes conditions which make it rather difficult for the schoolmaster to choose films to illustrate his scheme of work. In this catalogue there are two sizes of films: (a) standard width, 35 mm.; (b) sub-standard width, 16 mm. The sub-standard films give a small picture and are suitable for school work, especially in small rooms. They are supplied on non-inflammable bases and can be used with a number of different types of classroom projectors. Unless otherwise stated, films are on one reel, that is, each will take from ten to fifteen minutes to show. Standard size films are rented at a uniform charge of 10s. per reel, but there are certain reductions to a school taking a series of films within a period of twelve months, e.g. 36 reels, £14, 10s. 0d. For the sub-standard size, the rent is 3s. 6d. per reel. The period of hire requires that the films shall be returned within three days, one day to be allowed for dispatch, one day for showing, and one day for return. The teacher cannot, therefore, rely on having an opportunity of viewing the film before it is shown. Certainly he cannot draw up a scheme at the beginning of a term or a year to include the showing of films without taking a great deal for granted, and working merely upon titles and the reputation of the producing firm. He cannot prepare a running commentary beforehand.

The best use of the film in the classroom known to the writers was made in an Ealing elementary school quite ten years ago. An energetic and progressive headmaster was especially keen on the teaching of geography. He had the classroom specially fitted up for this purpose with every kind of visual help imaginable, including working models of all kinds. He also had a small "Pathéscope", his own property, and once a week would make use of this for a class of twenty or thirty boys. His method was to darken the classroom, leaving the door wide open, and make the class stand facing a small screen; he would then project the Pathé films over the heads of the class on to the screen. The film was shown right through, the boys watching it and the teacher taking a few notes as it ran its course. Then the blind was drawn up, the machine switched off, and the class questioned on what they had seen. After this, the film was put through again, being specially slowed down at certain points where the class had not fully observed the picture. When all this was over, probably next morning, the boys would be instructed to write an essay on what they had seen or to answer certain specific questions. The films were mostly travel

films, and being derived from the Pathé library, mostly related to the French Empire. So far as can be judged, this was the principal defect of the method. The compositions done by the boys in these circumstances were found to be extremely vivid and graphic, and the impression derived in this way was, it was believed, more permanent than that derived from hearing an oral lesson on the same subject. In short, the only difficulty of this method is that of ensuring a regular and proper supply of films. The Kodascope library also includes a great number of American films.

The Eastman Teaching Films experiment probably affords the most interesting example so far of an attempt to develop the film definitely as a classroom medium. It is the enterprise of a commercial company in America, but had been carried out in the closest co-operation with teachers and educational experts.

The films were based on scenarios prepared by groups of trained experienced teachers. Where a film was to be made in a certain district, the state university, the local schools, the local Chamber of Commerce, were called upon for their advice and co-operation in establishing the history and development of that region, its geological formation and climatic conditions, its industries and mode of life. The film was then made by the technical producers. Then extremely interesting experiments were undertaken to test the value of these films on variously composed groups of scholars in varying districts and conditions. It is claimed that the results showed a very high percentage in gain by what was termed the "film groups" over the "non-film groups".

Three hundred teachers participated in this experiment, and the summary of their opinions indicates that over 90 per cent expressed the opinion that the films were highly effective in stimulating the interest of the children. Further, they stated that the interest was not a passing one, but sustained, and resulted in increased activity in undertaking projects suggested by the films, and increased quality and quantity in the children's reading and writing.

Home-made Films

Now that instruments for taking amateur moving pictures are almost as common as the hand cameras of ten years ago, it ought to be possible to meet one difficulty mentioned above by adding to the supply of professional films a number of moving pictures made by the teachers themselves in their holidays. Keen geography teachers will know exactly what they require. They may wish to teach coast erosion, for example, which is probably the standing difficulty in the courses of several geography schemes. The clever teacher who had acquired sufficient technical skill with his "Kodascope" or "Auto-Kinecam", or any other type of instrument he affected, might very usefully take a moving picture of some stream, showing how the high bank grows higher at the expense of the low bank, and how sediment is washed round the curves by the current, making here a bay and there a cape, and how sandbanks are formed.

A very striking example of what can be done in this way is the initiative of the Altrincham County School for Boys in Cheshire, where under the direction of a master, Mr. Ronald Gow, the pupils have realized and produced films which have not only been used in their own school for the teaching of history, but have had considerable recognition and circulation in other districts. The two films, *The People of the Lake* and *The People of the Axe*, are attempts to reconstruct the ancient dwellings and mode of life of our ancestors in the form of stories. These films are made on standard stock, and the sets, lighting and wardrobes, were all made by the boys after careful research and consultation of authorities.

Talking Films

By 1930 a number of instructional films, notably the *Secrets of Nature* series (British Instructional Films), had been produced with a talking commentary instead of captions, and aroused a considerable amount of interest. The talking film opens up an important new field for investigation and experiment, and, once the cost of apparatus is reduced, will be increasingly available in school lecture halls.

CHAPTER IV

Practical Advice

From what has been said already it will be clear that the teacher who proposes to introduce the cinema into his school should first of all make up his mind as to the purpose for which he desires to use it, and the size of the audience. If it is for use in the school hall before an audience of a hundred or more pupils, he will do well—after obtaining sanction from his governors or local education authority—to take expert advice as to the best kind of installation and the necessary arrangements for safety. Such information can be obtained from the Federation of British Industries or any of the firms recommended in their catalogue.

Apparatus

The following are some of the firms supplying projectors and apparatus:

Messrs. Houghton Butcher (Gt. Britain, Ltd.), Ensign House,
88–89 High Holborn, London, W.C.1.

Messrs. Thornton Pickard, Altrincham, Cheshire.

Messrs. Cinema Traders, Ltd., 26 Church St., Charing Cross Road,
London, W.1.

Messrs. Walturdaw Cinema Supply Co., Ltd., 46 Gerrard St., W.1.

Messrs. George Palmer, Universal Cinema Supplies, Ltd., 13 Gerrard St., London, W.1.

Messrs. Moy Omnia, Camden Town, London, N.W.1.

Messrs. Kodak, Ltd., Kingsway, W.

Messrs. Bol Cine Co., 70 High Holborn.

These are for standard size 35 mm. and 16 mm. projectors. For 9 mm. films the following supply projectors:

Messrs. Pathéscope, Ltd., Lisle St., London, W.1.

Messrs. George Gill and Sons, Ltd., 13 Warwick Lane, London, E.C.4.

Some of them can be obtained on hire-purchase terms, namely, 20 per cent down and the remainder over twelve months. These projectors are all fireproof and can be worked from the ordinary electric-light supply or from an accumulator. They can be used safely with ordinary celluloid films. The films can be shown during daylight if the windows are covered with ordinary dark blinds. Several daylight screens are now being put upon the market, one of which, obtainable from Messrs. Blunt and McCormack, Ltd., combines a screen and projector with which no darkening of the screen is necessary, and so arranged that the teacher can project from beside the screen, facing his class and able to point out the scenes on the screen. Terms of renting for the films have been quoted above on p. 300. For educational purposes it is desirable that the mechanism of the projector should allow the film to be stopped, slowed down, or reversed. The screen should be some white opaque material on a heavy lath and roller. This is recommended because it rolls up easily and creases are unlikely to occur. Silver screens are not recommended, although they are more brilliant when viewed from the front. Viewed from an angle, however, the picture becomes distorted. A smooth whitewashed wall provides an excellent screen.

The classroom projector will be of lighter construction and supported on a movable stand. It is very important that this should be sufficiently firm to avoid flickering of the picture when the motor is at work. The up-to-date school projector generally contains a miniature motor; hand-driven machines are not easy to operate. It is an advantage if the projector also admits of the exhibition of lantern slides or stationary films. As a rule, local regulations do not allow the storing of films on school premises. The sub-standard films can, however, be enclosed in safety cases practically eliminating any risk of fire. The chief danger comes from the focusing of light rays upon the celluloid of the film. Nearly all modern projectors are fitted with safety devices to prevent this from occurring. The prices of good projectors of the portable kind suitable for the classroom ranged in 1930 between £20 and £60.

Supply of Films

For his supply of films the teacher has at present somewhat limited resources. The production of instructional films in Great Britain has been

limited and without definite objective. In order to meet, in some degree, the cost of production these films have had to be edited with a view to making a popular appeal in "interest" films. Such films as *Hine Moa*, *Livingstone*, *Palaver*, originally produced for entertainment purposes, are now constantly in demand for instructional use owing to the valuable material they provide as illustration to the teaching of natural and human geography and history.

There are, however, films existing which possess a definite educational nature. They are the results of scientific research and enterprise, and have been produced in collaboration with experts and educational authorities with the purpose of recording processes of nature, demonstrating the workings of the human system, and presenting various forms of animal life and habits. The films of Professor Chalmers Mitchell of the Zoological Society and F. Martin Duncan, analysing animal movement and recording animal psychology, are among these. The film studies of bird and insect life by Cherry Kearton and Captain Knight and W. P. Pycraft of the National History Museum form another important contribution. Studies of marine life have been produced under the auspices of the Marine Biological Association. By means of slow- and rapid-motion photography and microcinematography, which has been highly developed in this country, each process of the growth, flowering, and fertilization of plant life has been recorded in a series of examples unrivalled in this branch of instructional films production.

Medical science has enlisted the aid of the cinema, and has produced such important films as the X-ray photography of F. Melville, which records the pulsations of the living heart, and the films of Dr. Canti of St. Bartholomew's Hospital, which show the development of the living tissues.

Most of the firms which supply projectors (see p. 302) also issue the catalogue of a film library, while a certain amount of film material produced by industrial concerns, primarily for advertising purposes but with valuable instructional quality, can be obtained free of charge from the Educational Films Bureau, 24 Denmark St., London, W.C.2.

British Instructional Films, Ltd., issues a catalogue of over two hundred films covering a wide range of subjects and available for hire.

BROADCASTING IN SCHOOLS

BY

J. C. STOBART

BROADCASTING IN SCHOOLS

CHAPTER I

History of Educational Broadcasting

It is important to realize that the B.B.C.'s invasion of the sphere of education, if invasion is the right word, was not lightly or carelessly undertaken. In October, 1923, that is after they had been in existence for less than a year, the British Broadcasting Company summoned a committee which they called the National Educational Advisory Committee, including representatives of Local Education Authorities, Directors and Secretaries of Education, and the various teachers' organizations. The National Union of Teachers had two representatives. At one of their earliest meetings, it was explained that the Company was functioning as a public utility service, and proposed to explore the possibilities of wireless for educational purposes. They were prepared to bear the expense over an experimental period, but they anticipated that the cost of educational transmissions would eventually be contributed from official sources. Before their second meeting, in February, 1924, the Managing Director and the Controller of the B.B.C., Mr. J. C. W. Reith, as he then was, and Vice-Admiral C. D. Carpendale, C.B., had an interview with the President of the Board of Education, which office was held then by the Rt. Hon. Sir Charles Trevelyan, Bart., and told him that they were prepared to experiment in the field of education. The Board of Education welcomed the idea of such experiments, and detailed one of H.M. Inspectors (the present writer) to attend the meetings of the National Educational Advisory Committee, in an unofficial capacity.

At their February meeting the committee advised the B.B.C. that they should institute regular broadcast lessons without waiting for formal official recognition. It was decided that all stations of the B.B.C. should forthwith arrange in conjunction with their own local Advisory Committees, formed on a similar basis, a series of these experimental broadcasts.

In May, 1924, a regular experimental series began in Glasgow, London, and elsewhere. In August, 1924, by a special arrangement with H.M. Treasury, J. C. Stobart was seconded to the B.B.C. by the Board of

Education, and in 1925 joined the staff of the B.B.C. in a permanent capacity as Education Director. Some of the experiments then made are described later. There was a sufficient body of support from more than a hundred schools to warrant the establishment of a regular daily transmission to schools in the afternoon during school hours, and a daily series of evening talks intended for adults or ordinary listeners. By November, 1925, at the fourth meeting of the National Advisory Committee, it was reported that there were then 220 schools listed as receiving wireless from the London station. Moreover, a scheme for Adult Education had been drawn up in consultation with the Adult Education Committee at the Board of Education, and a printed syllabus was issued. At the fifth meeting of the National Advisory Committee for Education, in June, 1926, the Education Director was able to report that there were between 1500 and 2000 schools on the register in London. Of these 70 per cent were public elementary schools, 16 per cent private schools, 10 per cent High Schools or secondary schools, and 4 per cent Central schools. The list was, however, by no means complete.

The principal difficulties lay in unsatisfactory reception in schools, due to imperfect apparatus. A number of advisory engineers had been appointed to advise schools and improve reception. The attitude of the Board of Education towards the new invention is sufficiently indicated by their response to the B.B.C.'s appeal. Their official attitude was one of benevolent neutrality. They were not prepared to do anything to press the claims of wireless upon the schools, but on the other hand their inspectors were almost invariably willing to accept wireless as part of the school routine, and a number of them gave much unofficial encouragement to enterprising teachers. The attitude of the local education authorities was similar. While London and one or two other Education Authorities made by-laws, at first rather stringent, limiting the periods which might be devoted to wireless in school time, most of the authorities gave the teachers a free hand so long as no expense was involved for the ratepayer. Thus the great majority of listening schools provided their own apparatus in a pioneer spirit, at their own expense, though in many cases benevolent managers or friends of the school helped in the equipment. It must be remembered that the years in question were years of great financial stringency in the school world. All the extra money available for education had been directed to the improvement of teachers' salaries. Then, and even now, the severest economy was practised in details of equipment. Hence benevolent neutrality was also the general policy of the local education authorities.

The professional attitude of the teachers might be described in the same terms. In some localities, and among some of their branches, the National Union of Teachers found traces of professional jealousy, and the fear that the introduction of broadcasting might lead to some decline in their value. But the National Union of Teachers never took this line. As they were represented on the National Committee, and thus par-

ticipated in the drawing up of plans, and choice of speakers and subjects, their attitude was distinctly helpful, and when it came to allowing the B.B.C. space to develop their ideas at the conferences of the N.U.T., the high officials proved to be decidedly friendly. The B.B.C. lost no opportunity to explain to the world that wireless had not come to displace the teacher, but that on the contrary his active and whole-hearted co-operation would always be necessary. It was in this way that the good-will of the teachers was assured, and by the summer of 1927 the number of listening schools rose to about 3000 for London and Daventry only.

In the meantime (1926) the B.B.C. had been approached by the British Institute of Adult Education with the request that a joint committee might be appointed to investigate the possibilities of wireless as related to adult education, and as a result a strong joint committee was set up under the chairmanship of Sir W. H. Hadow, Vice-Chancellor of Sheffield University, to consider the relations between the B.B.C. and the various bodies concerned, officially or unofficially, with the education of adults in the United Kingdom. That committee issued their report in January, 1928, under the title of *New Ventures in Broadcasting*. They proposed the establishment of a National Council for this purpose, on which the Board of Education, the Local Education Authorities, the Universities, and the various voluntary bodies should be jointly represented. The committee designed a full constitution for this body, which was to be no longer consultative or advisory, but authoritative and executive, though the B.B.C. had to reserve the rights of supervision and ultimate responsibility conveyed to them by their charter. Before the issue of this report, the British Broadcasting Company had changed its own constitution and status, and had become the British Broadcasting Corporation, with a governing body under the chairmanship of the Earl of Clarendon. Sir J. C. W. Reith became the Director-General of the new corporation. By May of 1927 a separate section of the B.B.C. organization had been formed to deal with adult education.

Sir Henry Hadow's committee did not feel themselves called upon to deal with the subject of broadcasting to schools, but in a footnote they recommended the establishment of a separate council for school broadcasting.

On the schools side also, the year 1927 was signalized by a detailed and elaborate inquiry into the value of broadcast lessons to schools, undertaken by the Education Committee of the Kent County Council and organized by their Director, Mr. E. Salter Davies, with financial assistance from the Carnegie United Kingdom Trust, who made a grant of £300 towards the cost of the experiment. Upwards of eighty schools took part in the experiment, which lasted for more than a year. The schools enrolled as experimental stations had previously been inspected by the B.B.C.'s engineers and their apparatus passed as suitable for a test. The Kent Report, which was published and issued gratuitously by the Carnegie United Kingdom Trust in 1928, included brief comments, some favourable

and some critical, by headmasters and mistresses, on the courses then in process. But there was a unanimous affirmative answer to the question whether schools which had tried wireless would wish to continue it, and a unanimous affirmative to the question whether wireless had proved beneficial to the brighter pupils. The Kent Report also contained a suggestion that broadcasting to schools was now a matter of such importance that it ought to be reorganized on a national scale, and not left merely to the judgment of the B.B.C.

Moved by these two reports, the B.B.C. decided at the end of 1928 to set up two National Councils, one for adult education and one for school broadcasting. Their old National Advisory Committee resigned in order to facilitate the reorganization, and both councils got into working order between the autumn of 1928 and the spring of 1929. It is worthy of note that among all the educational leaders who were invited to serve on one or another of these committees there was not one refusal. This is a clear indication of the importance attached to broadcasting by the leading figures in the educational world. On their Adult Council the B.B.C. had the services of Sir John Sankey, Lord Justice of Appeal, and later Lord Chancellor of England. For their Schools Council they had as chairman the Rt. Hon. H. A. L. Fisher, Warden of New College, and formerly President of the Board of Education.

The Central Council for School Broadcasting have already held three full meetings, and have appointed a strong executive committee, with sub-committees to deal with the following subjects: English literature, geography, history, modern languages, music, nature study, and experimental courses. There is in addition to the above a sub-committee to arrange the special broadcasts to secondary schools, and a sub-council for Scotland is also in being.

Contact between the councils and the B.B.C. is maintained through the fact that the secretaries of the two councils are officials of the B.B.C. On the schools side the whole of the expenses of broadcasting to schools is still borne by the B.B.C., though it is hoped and anticipated that direct contributions will be obtained from other sources. It is pointed out in the reports referred to above that out of the large sums retained from licence revenue by the Postmaster-General and H.M. Treasury there might well be a contribution to the cost of the provision made by the B.B.C. towards national education. Many of the local authorities have of late begun to assist the supply of broadcast receivers to the schools, but in the majority of cases the cost is still borne by teachers or friends.

As the number of licence holders in the United Kingdom has grown from about 150,000 on the 30th September, 1923, to more than three millions in January, 1930, it is clear that the revenue available for broadcasting is very considerable, even when the Government deductions have been made.

At the present time there is a tendency to reduce the number of wavelengths all over Europe, and as a consequence more of the actual broad-

casting is thrown upon London and Daventry. The Central Council for School Broadcasting therefore now plans and organizes a national service for all stations. Scotland has for various reasons (such as the difficulties of reception owing to distance, the variations in school programmes, terms, and so forth) her own separate system.

CHAPTER II

Theory and Practice

Now that over three million homes are registered as licensed listening stations in the United Kingdom, it is unnecessary to argue about the influence or the persuasive power of the best broadcasters when their voices are faithfully transmitted and received. In hard cash terms, a well-spoken appeal for a popular hospital, the Week's Good Cause, has brought in more than £19,000. Moreover, during the seven or eight years of radio's existence there has been a steady improvement on the technical side, until now the British Broadcasting Corporation can promise to almost any school which will accept their advice a regular supply of talks and lectures in and out of school hours in tones as clear and natural as if the speaker were physically present in the classroom. Many a teacher who made pioneer experiments three or four years ago with unsuitable apparatus and voted the thing a failure because the invisible teacher could not then hold the attention of the class, would now find a very different result. This is proved by the steady progress of broadcasting among the schools of Great Britain. The register of listening schools kept at Savoy Hill contains more than 5000 names, and it is safe to say that more than 3000 schools are actually listening to courses in any one week. New schools are added to the register to the number of 700 to 800 each year. This means that approximately 200,000 pupils in English and Scottish schools are receiving some part of their education in school time by wireless.

Before going on to describe the methods and organization of this great new factor in school routine, it would be well to examine what part in education wireless claims to play. The writer, when he came to experiment in educational possibilities in May, 1924, and when he joined the staff of the B.B.C. in 1925, had behind him fourteen years' experience as H.M. Inspector of Elementary Schools, and behind that six years of actual teaching experience. He therefore knew and even preached the modern doctrines of self-activity or "learning by doing", and was in full sympathy with Mr. E. G. A. Holmes in his idea that the process of education consists not in cramming and stuffing receptive patients so much as in releasing those natural powers which Mother Nature has given to the young for their growth, and thus allying itself to the life force. In passing, it might be remarked that the modern schools of educational thought seem to

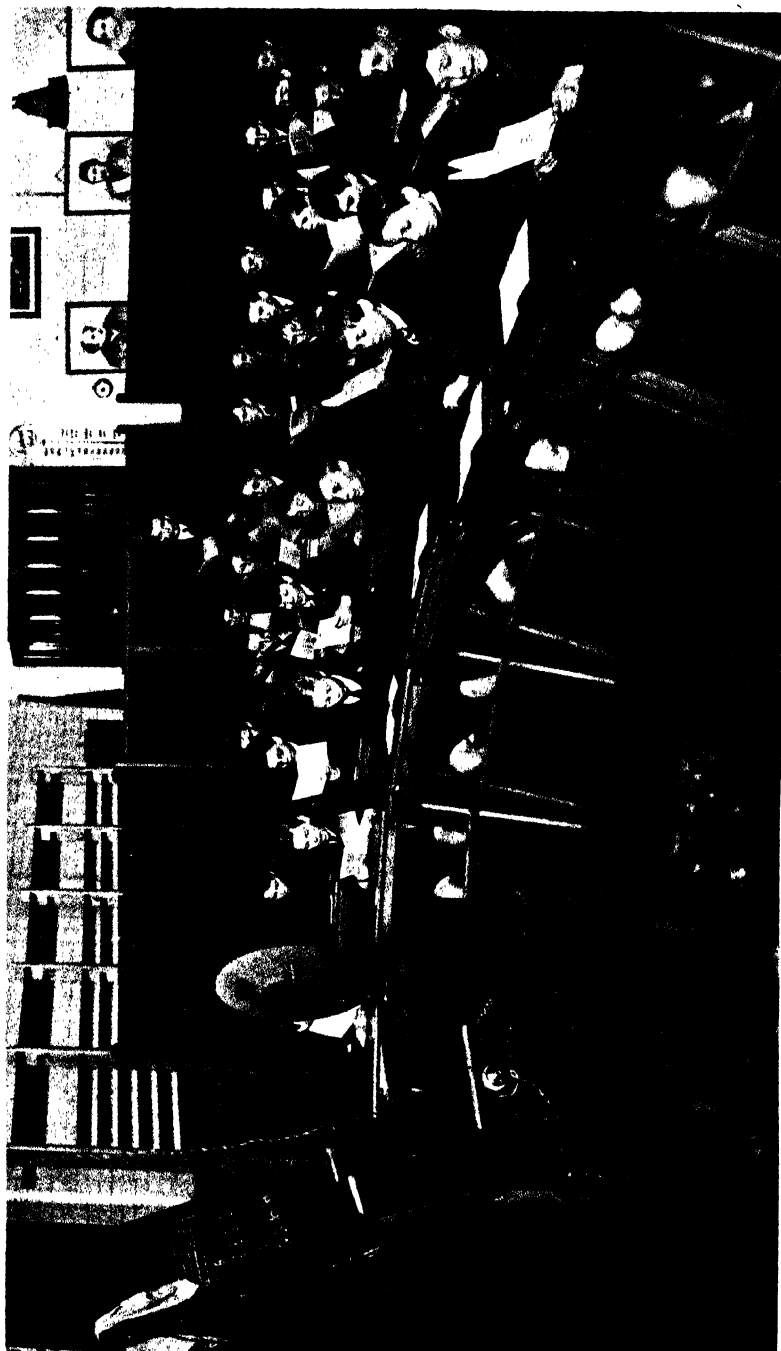
underrate two of the strongest natural forces which make for growth in the young, memory and mimicry. It is probably because these forces are not on the liberal side that they have been undervalued. Modern doctrines are on the whole against teaching by talking.

But here it is necessary to discriminate. Mr. Holmes in conversation with the writer admitted that what he himself had always opposed was excessive use of the "chalk and talk" method of teaching, which, in the early years of the twentieth century, dominated the elementary classroom to an incredible degree. Masters of Method in the Training Colleges handed on a tradition which had been devised in primitive times when it was hopeless to expect much real scholarship in the schools. Half-trained teachers of multitudinous classes could not be expected to do more than pass on some of the contents of a text-book, and therefore they had to be trained to proceed very slowly from the known to the unknown by question and answer. Nearly all subjects in all grades were taught in this manner, which was well designed to bring forward a whole year's crop of pupils at the pace of the slowest. Obviously the method has its uses, but obviously its abuses are disastrous, in killing the interest of brighter children.

Accordingly, while there were many reasons to admire the English primary school, especially its firm but free discipline, its general efficiency in turning out children with a fair standard of attainment in essential subjects, and a pretty skill in several accomplishments, one felt at the same time that there was a certain poverty of mind. These scholars read very few books, they seldom left school with any desire to learn more, the habit of being continually questioned left their minds divested of curiosity, like a sucked orange or an overpricked pincushion. Moreover the teachers, who deserve every credit for faithful and efficient service on the only lines possible for them, had so many subjects to teach and so many exercises to mark in their spare time, that it was impossible for the vast majority to intensify their own college studies. Hence such subjects as history, music, and literature, which really need specialists even in their elementary stages, were seldom very well taught.

How keenly the teachers recognized their inevitable limitations and how ready they were to receive special assistance was proved by the startling success of the Empire Study Bulletins issued in connexion with the Wembley Exhibition in 1924. Just simultaneously the development of broadcasting seemed to provide a heaven-sent method of enriching the curriculum.

It was the flat level, the monotone of general instruction, that needed diversifying. The ways of Nature are manifold, and the methods of approach to the young mind are equally various. It is a mistake to believe that the teacher merely builds up knowledge, lesson by lesson, course by course, term by term, as a bricklayer builds a house. In education the foundations are dynamic. The scholar's attention varies according as particular teachers and particular subjects capture his personal interest and strike a responsive chord in his being. One's own memories of learning



BROADCASTING IN SCHOOLS: A MUSIC LESSON

correspond with this view. There were drab periods of toil, necessary no doubt, but there were also here and there sudden illuminations as when the Alps take fire at sundown. Among the sources of inspiration there was sometimes a regular teacher who took colour from some particular subject of his choice, but most of them were outsiders who came to give an occasional lecture or visitors reading their favourite books. Then young tinder-like souls would catch fire and that fire would not be extinguished in a lifetime.

That is the theory which underlies broadcasting to schools. The broadcaster must be a devoted specialist. He or she must have a personality reflected in the voice, and then, as B.B.C. correspondence abundantly proves, the miracle is wrought across leagues of space.

Technique of Broadcast Teaching

If this underlying theory be admitted, several consequences follow in regard to method. In the first place, broadcasting only claims a subordinate ancillary part in the school routine. It can strengthen and reinforce a staff just like two or three visiting teachers, but it cannot replace or displace the class teacher. Indeed, wireless has generally failed where the teacher has just turned it on and left it to do its work like an automatic Robot. It has succeeded most marvellously where the teacher has welcomed it as an ally and has listened with the class, noting an occasional failure to understand, co-operating with map, pointer or chalk as requested by the unseen voice, and lightly reinforcing the lesson at the end or next morning. In order to help, and prepare the teacher for such co-operation, the B.B.C. issue a number of penny pamphlets containing preparatory notes, and their three terminal syllabuses can be had gratis from The Bookshop, Savoy Hill.

Secondly, it follows that the wireless lessons are not placed in the forefront of the day's work. It is assumed that the morning is given to hard work at well-planned exercises. These afternoon broadcasts are not planned for light relaxation, indeed they claim close concentration, but no effort is spared to make them pleasant. It is unnecessary to speak of the graceful piano-playing with which Sir Walford Davies illuminates his music. The history lessons are illustrated whenever possible by old songs, old street cries, or little dramatic scenes. The most intelligent of the young London actors and actresses are brought in to give life to the readings of English literature. Concerts and plays are given on Friday afternoons at considerable expense; and travellers from other countries are introduced and borrowed from other parts of the programme to give life and reality to geography teaching. It is a definite aim that the B.B.C. should provide out of its unstinted resources the luxuries of education which no school however rich and well staffed can provide for itself; and choose this provision in such a way that the wireless lessons illuminate the ordinary work of the classroom with fresh light from a new viewpoint outside the school walls.

It is recognized that the wireless medium involves certain limitations to be set off against its undoubted advantages. For example, the immediate response of the learners has to be imagined or guessed, as it cannot be perceived. The most effective broadcasters are those who by intuition or imagination best succeed in visualizing their unseen audience. In early days the B.B.C. frequently experimented with a visible audience in the studio or with a single interlocutor putting or answering questions. Sir Walford Davies, the most brilliant of broadcast teachers, precisely because of his gift of imagination enabling him to forecast the classroom reaction to his words, believed for a long time that it helped him to have a few boys and girls present in the studio if only to remind him of the type of audience he was addressing. But it was found that there were great difficulties in balancing the strength of a man's voice in comparison with boys' voices, especially when the latter were subdued through nervousness and unfamiliarity with the studio conditions. Moreover, when they were encouraged to ask questions, their questions often led the lesson astray and wasted time as is frequently the case in the classroom. But it matters much less when forty pupils wander off into a digression than when forty thousand are sacrificed for the sake of one. Then, in order to eliminate wandering, experiments were made with prepared dialogue, but this method, while it has a definite place in modern language teaching, almost invariably creates an impression of artifice and unreality. Before long all the chief broadcasters in London, including Sir Walford Davies, came to the conclusion that it was not possible to distribute one's attention equally between the visible and the invisible audience. Either one or the other must suffer. This is not stated as a final conclusion, but as a present belief. In West Germany they are now broadcasting lessons from one school classroom to others. Possibly the true solution will arrive with perfected television. If the broadcasting teacher could see before him the screened reflection of one of his wireless classes, he would be greatly assisted towards precision.¹

In fact there must and should be a difference between studio and classroom technique. The studio lesson must be more definite, more closely prepared in order to be as concise and effective as possible within the narrow limits of time. Most broadcasters prepare a written text of their lesson, though to succeed they must avoid giving the impression that they are merely reciting a script. Moreover, the B.B.C.'s researches at the "listening-end" during the process of the Kent Experiment in 1926-1927 showed how necessary it is that the broadcaster should provide for variety by changes of voice, by direct appeals to his listeners, and by giving them from time to time something definite to do, some question to answer, some note to take, or to change position. The teacher or class-leader is frequently asked to play some part in the lesson. It is conceded that fifteen or twenty minutes is about the maximum length of time for unrelieved concentration on a consecutive line of thought by young children.

¹ See *Die Werag* (Köln, 23rd June, 1929) for a vivid illustrated account of the method.

Those of the B.B.C. lessons which exceed this length of time are nearly always varied by illustrations or some diversification. The term "lecture" as applied to school broadcasting is deprecated, and the best broadcast lessons provoke a lively response. In 1928 a number of the directors of European broadcasting stations paid a visit of inquiry to London. They were taken in taxi-cabs to an elementary school in West London, and there they found a class of young girls so visibly enjoying their music lesson that the entrance of twelve visitors attracted no attention. The girls smiled or laughed aloud, listened, hummed a bar, stood up and sang, looked up the reference in their scholars' manual, all precisely as directed by their invisible teacher. Now, this teacher is a man of such eminence in his profession that for going to a school to give a lecture he might well ask a fee of twenty-five guineas. Yet for that sum expended on good wireless apparatus the school can have him every week—and half a dozen others of almost equal eminence.

Means of Contact with Listeners

As the broadcaster's chief difficulty lies in the uncertainty of response to a medium which can be compared with "one-way traffic", it becomes necessary to establish every possible form of contact in other ways. During the years 1924 to 1929 the B.B.C. invited teachers to forward samples of written work done by their pupils in response to suggestions from the microphone. Astonishingly good work was done in this way, and the sight of these exercises enabled the broadcaster to improve his teaching by observing the nature of the errors made by the pupils. But as the number of listening schools increased, it became necessary to cut down the number of exercises which might be sent by any one school, and quite lately the Schools Council has had to decide against continuing this practice. The mere number of names which had to be read at the microphone in commendation of specially good work took up too much time, and there was a feeling among the teachers that it was not good to encourage such emulation, for professional reasons. In prize-givings the B.B.C. used to find another means of contact. Twice every year, a wireless examination took place, that is to say, the lecturer read out half a dozen questions, pausing for a minute or two at the end of each for a short written reply, and added a final question for which the children were allowed ten minutes for a more detailed answer. Teachers were asked to certify these papers as the unaided work of the pupils done under examination conditions, and to send them, or samples of them, up to Savoy Hill for appraisal. Here again it is possible to say that the results were astonishingly good, proving conclusively that a broadcast course of one lesson a week extending over twelve weeks, is remembered at the end of that period as well as if the lessons had been given face to face.

It must be admitted that the pioneers of school broadcasting at Savoy Hill were astonished, one might almost say perplexed, at this result. No doubt the psychological explanation is that the broadcast lesson, mysteriously

transmitted, and issuing from an instrument, is heard with a special degree of concentration. Being so brief and concise, attention is not dissipated as is often the case with the more conversational and digressive classroom methods. On one occasion, a history teacher's terminal examination took a novel form. She asked the class to say which of her twelve lessons they preferred, and why. An experienced education official who heard this question agreed with the headmaster that it was a bad test, since all the children would naturally write on the lesson they had heard last. This expectation proved to be quite contrary to the fact. The children's choice of subject ranged almost equally over the whole series, except that one lesson which had been rather more difficult than the others was neglected. This is in itself striking proof of the duration of memory of broadcast lessons. The prize-winning children and their parents or teachers were invited to come to the studio for a ceremony in which some eminent person connected with education or with broadcasting, or both, was invited to give the prizes. Such ceremonies have a value of their own, not only as affording scope for a periodical review of school progress, which is broadcast to all persons interested, but also as enabling the lecturers to see and greet their brightest pupils. But now that the Schools Council provides better means of contact and appraisal of results, the system of prize-giving has been abandoned.

Another means of contact is to be found in correspondence. Of this it need only be said that it requires testing and confirmation. During the first year, the B.B.C. relied too much upon the kind letters of appreciation which were received from teachers. It was not until they actually paid a great number of systematic visits to listening schools during the course of the Kent Experiment, during 1926-7, that they found how many defects in technique and transmission might be concealed by the friendliness of their correspondents. Personal visits are therefore essential, and it is a very good thing if a wireless teacher can find time to visit the listening schools. Nothing is so powerful in enabling him to gauge the tastes and powers of his audience. Each of the 'subject sub-committees' of the Council includes teachers who are actually using wireless.

While it is necessary to insist upon the importance of mutual confidence and co-operation between the teachers at the two ends of the wireless chain, this must be qualified by recording the fact that the B.B.C. have many individual listeners who cannot in the nature of things have any visible interpreter. The B.B.C. lists contain the names of dozens of home students who are unable by reasons of health or locality to attend school, or who have passed the school age and are still willing to class themselves as scholars. Indeed, there are enrolled in Sir Walford Davies's class a great number of listeners of advanced age, like old Cato, who started learning Greek at the age of eighty. There is ample testimony from these isolated listeners that they profit exceedingly, and wireless is undoubtedly an admirable instrument of education, especially when taken in conjunction

with correspondence courses as a substitute where direct attendance at school is impossible, for example, in cases of quarantine. It will also be found to provide a solution for the difficulties experienced by the education authorities in dominions and colonies who have to organize the education of distant and isolated areas. Such potentialities are beginning to be realized in Canada.

Choice of Subjects

In considering the choice of subjects and speakers, it may be confirmed that the choice of speaker is of paramount importance, and the choice of subject a minor consideration. The gift of good wireless teaching is a rare one, and, as experience is of the greatest value, the best policy no doubt is to continue with the same broadcasters so long as they have fresh material. Indeed, as the wireless class is only supposed to cover a limited range of age in the schools, say from 11 to 14, there is no valid reason why courses should not be repeated at intervals of four or five years, so long as the course is presented with sufficient freshness. Theoretically, any subject can be taught by wireless if it can be taught to a blind man or to a class placed behind a screen. Naturally mathematics depend too much upon diagrams and formulæ to be an ideal subject for broadcast treatment, and in actual practice the choice of subject must depend upon the consideration of what wireless can present to the schools over and above their own probable resources. Music is undoubtedly the subject in which it is strongest. In literature, the fine reading of poetry is beyond the resources of many schools. In science and nature study, experts are both necessary and rare. In language teaching it is almost essential that schools should have the opportunity of hearing the voice of an external native teacher, if only for purposes of comparison. The pupil who can only understand French when spoken by his or her own familiar teacher is not for practical purposes an equipped linguist. So also in geography, the traveller's tale, told vividly and enriched by personal experience, is an asset of the greatest educational value. Series of lessons on English pronunciation by an expert phonetician have been greatly appreciated by the schools as improving the speech. History is a subject which definitely calls for specialist knowledge. The somewhat dry political facts stated in the history text-book seem to leave little or no impression upon the minds of young pupils, so that many competent authorities have doubted whether history was a suitable primary school subject. But the specialist who concentrates upon social history can produce a really vivid impression and a lasting memory.

In addition to these, several subjects that might be termed specialist or occasional have been accepted by the schools on the ground of stimulating interest and increasing general knowledge. Secondary school teachers who have been consulted on the matter seem to think that general knowledge is the proper sphere of wireless, seeing that they have specialists on all the subjects which they regularly teach.

Typical Programme

The programme of broadcasts to schools from London and Daventry (5XX) and all stations (Scotland excepted) was in 1930-31 as follows:

- MONDAY: 2.10-2.25 *French Readings and Dialogues*, by Camille Vière and E. M. Stéphan.
 2.30-3.0 *History*, by Rhoda Power.
 3.5 -3.20 *Stories for Younger Pupils*, by Rhoda Power.
- TUESDAY: 2.10-2.25 *Nature Study*, by Eric Parker.
 2.30-3.30 *Music, Elementary and Advanced*, by Sir Walford Davies.
 3.35-4.0 *French*, by E. M. Stéphan.
 4.5 -4.25 *Special Talks for Secondary Schools: Careers*, alternating with *Modern Scientific Achievements*.
- WEDNESDAY: 2.30-2.55 *Biology and Hygiene for Senior Schools*, by Professor Winifred Cullis.
 3.0 -3.25 *English Literature*, by J. C. Stobart and Mary Somerville.
- THURSDAY: 2.10-2.25 *German Readings and Dialogues*, by Dr. Ernst Deissmann, Jr.
 2.30-2.45 *English Speech*, by A. Lloyd James.
 4.5 -4.25 *General Knowledge Talks for Preparatory and Other Schools: Music*, by C. Armstrong Gibbs.
- FRIDAY: 2.30-2.55 *Rural Science: Life in the Soil*, by D. Ward Cutler, alternating with *The School Garden*, by C. E. Hudson.
 3.0 -3.20 *Travel Talks*.
 3.25-3.40 *Miscellaneous Courses*.
 3.45-4.30 *Concerts and Dramatic Readings*.

All the above courses, with the exception of those for secondary schools and the miscellaneous courses on Fridays, were three-term courses. The readings in foreign languages at 2.10 p.m. on Mondays and the courses at 3.25 p.m. on Fridays were omitted during the summer term, and in that term the concerts and plays on Fridays were given from 3.30 to 4.15 p.m.

The terms of the year are:

AUTUMN TERM: 22nd September to 12th December.

SPRING TERM: 19th January to 27th March.

SUMMER TERM: 27th April to 26th June (omitting Whit-week).

Technical Problems

In the light of their past experience, the B.B.C. cordially invite teachers proposing to take up the use of wireless for their schools to communicate with them at Savoy Hill, London, at a very early stage. They have prepared printed specifications for four types of receiving sets, according to their distance from a broadcasting station, as follows:

Type of Receiver.	Distance from 5XX.	Distance from Regional Transmitter.	Distance from a Main Station.	Distance from a Relay Station.	Cost including all accessories and a £6 loud-speaker or headphones at 12/6 per pair.	Cost of set excluding accessories and loudspeaker or headphones.
	Miles.	Miles.	Miles.	Miles.	£ s. d.	£ s. d.
One-Valve Set (with 6 pairs of headphones).	100	70	25	3	10 10 6	4 15 0
Two-Valve Set (with 12 pairs of headphones).	100	70	25	3	19 12 6	5 17 6
Two-Valve Set (with a small loudspeaker).	30	20	5	2	18 2 6	
Three-Valve Set (a selective set for loud-speaker operation).	120	80	30	4	24 2 6	9 5 0
Four-Valve Set (this set embodies a screened-grid high-frequency stage. It is not advisable to use it within the ranges for which a set constructed to the 3-valve specification would be adequate).	—	—	—	—	27 12 0	11 11 0

They advise that teachers should place these specifications before competent local radio engineers, and invite them to tender for the supply of apparatus accordingly. If the school is not too remotely situated, the B.B.C. will generally be able to detail one of their education engineers to pay a personal visit. They particularly urge teachers to study the printed programmes of the B.B.C., which can be had without cost on application, and to choose the subjects or subject which best suit the needs of their school. No school is expected to take the whole of the schools broadcast programme; certainly not in any one class. There are, however, large schools, both primary and secondary, which are able to use the whole programme with different classes. It is naturally impossible for the Corporation to recommend sets by particular manufacturers for purchase. In the case of schools which have technical skill and no efficient radio engineer within reach,

the B.B.C. generally recommend that they should pay a visit to some neighbouring school which has a satisfactory installation, and form their own opinion.

Suggestions for Teachers

When a school has installed its apparatus, and obtained the programme and syllabus of the Central Council for School Broadcasting, it will then probably wish to apply for some of the school pamphlets supplied by the B.B.C., price 1d., for many of the subjects in their curriculum. These documents contain detailed advice to teachers as to how they might best handle the broadcast lessons, with special reference to scope, preparation, and revision of the lessons.

It is urged that, whenever feasible, preparation or revision or both on the lines indicated in the pamphlets should be taken with the class; excursions encouraged when desirable; further illustrations and the books suggested for reading obtained from libraries and elsewhere. It is often found that the value of a wireless lesson is greatly increased if the class-teacher can find time immediately afterwards to obtain by question and answer from pupils an account of what they have heard, and it is requested that teachers should report instantly to the B.B.C. any dissatisfaction with method or material, and communicate suggestions for improvement.

Prior to every term a copy of the current term's syllabus is sent free to all schools on the B.B.C. Register, and in September, before the first term of the year, Aids to Study manuals and pamphlets are distributed. Any new listening school that is added to the Register after the beginning of the autumn term, 1930, can obtain one complete set of pamphlets free on application to the B.B.C.

With regard to reception, it is most strongly urged that no school ought to listen to broadcast talks unless it has a set capable of giving absolutely clear and reliable reception. It is urged that careful provision should be made for maintenance, periodical charging of accumulators, and replacement of high-tension batteries when necessary. It is suggested that the loudspeaker should be used in a classroom, and that the classroom should be as far removed from external noises as possible.

In general, teachers are invited to consider that the B.B.C. are very anxious to help them in every way to get satisfactory results, as it is naturally a source of great disappointment to them when their educational services fail. In nine cases out of ten, the causes are not irremovable.

DATE OF ISSUE

**THIS DOCUMENT IS RETURNED
WITHIN 5, 7, 10, 15, 20, 30, 45, 60, 75, 90, 105, 120, 135, 150, 165, 180, 195, 210, 225, 240, 255, 270, 285, 300, 315, 330, 345, 360, 375, 390, 405, 420, 435, 450, 465, 480, 495, 510, 525, 540, 555, 570, 585, 600, 615, 630, 645, 660, 675, 690, 705, 720, 735, 750, 765, 780, 795, 810, 825, 840, 855, 870, 885, 900, 915, 930, 945, 960, 975, 990, 1005, 1020, 1035, 1050, 1065, 1080, 1095, 1110, 1125, 1140, 1155, 1170, 1185, 1200, 1215, 1230, 1245, 1260, 1275, 1290, 1305, 1320, 1335, 1350, 1365, 1380, 1395, 1410, 1425, 1440, 1455, 1470, 1485, 1500, 1515, 1530, 1545, 1560, 1575, 1590, 1605, 1620, 1635, 1650, 1665, 1680, 1695, 1710, 1725, 1740, 1755, 1770, 1785, 1800, 1815, 1830, 1845, 1860, 1875, 1890, 1905, 1920, 1935, 1950, 1965, 1980, 1995, 2010, 2025, 2040, 2055, 2070, 2085, 2100, 2115, 2130, 2145, 2160, 2175, 2190, 2205, 2220, 2235, 2250, 2265, 2280, 2295, 2310, 2325, 2340, 2355, 2370, 2385, 2400, 2415, 2430, 2445, 2460, 2475, 2490, 2505, 2520, 2535, 2550, 2565, 2580, 2595, 2610, 2625, 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